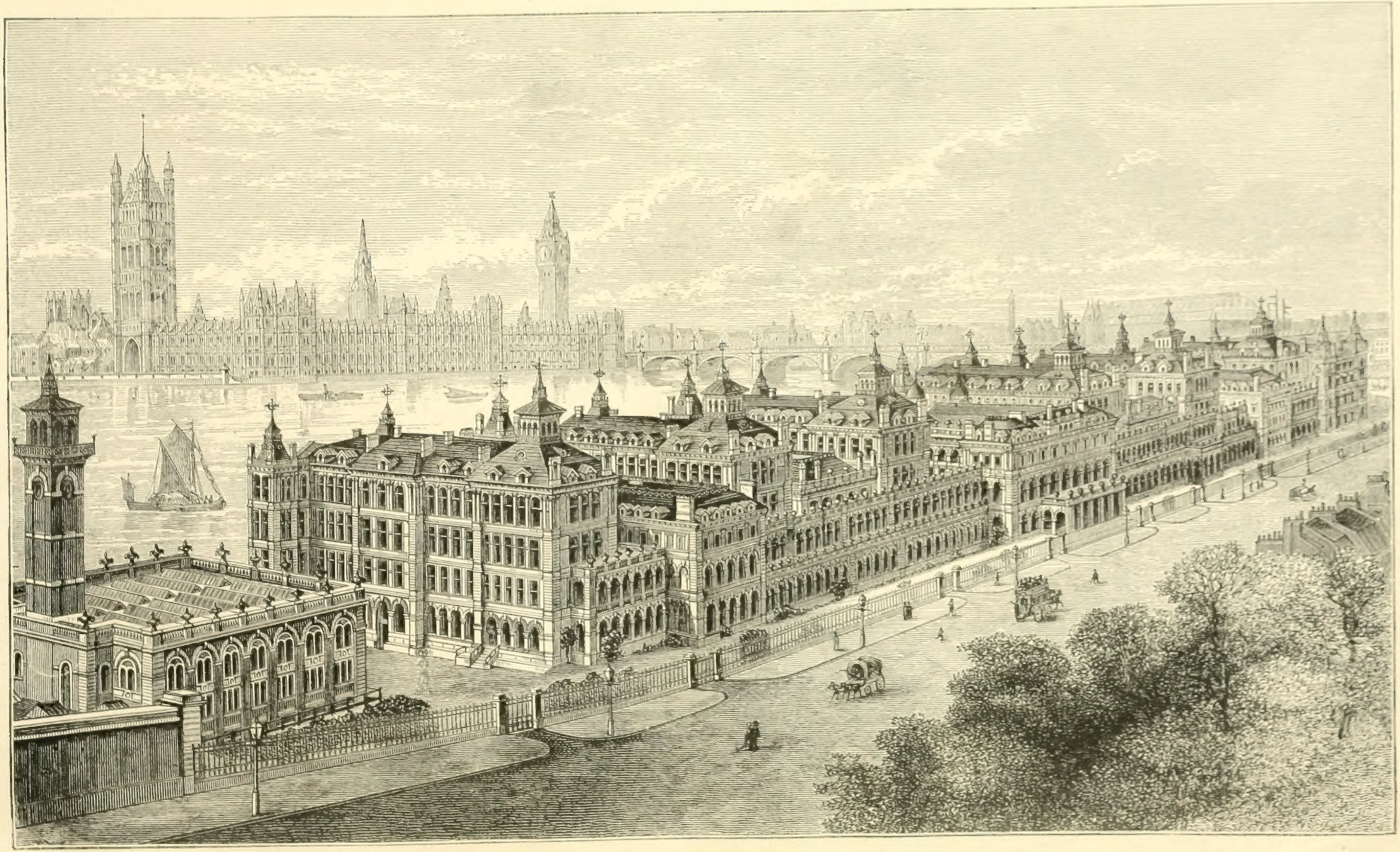

VIEW OF ST. THOMAS'S HOSPITAL FROM THE SOUTH-EAST.

SAINT THOMAS'S HOSPITAL REPORTS.

New Series.

EDITED BY

DR. PAYNE AND MR. MAC CORMAC.

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STATISTICAL

REPORT ON CASES OF CHOREA.

By THOMAS B. PEACOCK, M.D., F.R.C.P.,
HON. CONSULTING PHYSICIAN TO THE HOSPITAL.

PART I.

In 1863 I published in the 'Brit. and Foreign Med.-Chir. Rev.' an analysis of 31 cases of chorea, nearly the whole of which I had treated at the hospital, and I now propose to give a similar report of 92 cases which have been under my care since that time. This number does not, however, represent the actual number of different cases, as four patients were twice in the hospital, and a fifth was three times under treatment, and these appear as distinct cases on each admission.

The following table gives the distribution as to age and sex:

	Males.	Females.	Total.
5 to 10 years of age	4	18	22
10 to 15 ,,	18	33	51
15 to 20 ,,	3	11	14
20 to 30 ,,	1	4	5
	26	66	92
Mean age	12·7	12·9	
Extreme ages	23 and 9	27 and 7	

Precise age of patients in cases of first attack only, in males and females separately:

Males.		Females.			
4½	...	8	11	12	16
9	..	8	11	13	16
10	.	8	11	13	17
11	...	8	11	13	17
12	...	8	12	15	18
13	..	9	12	15	20
15	.	9	12	15	
15	...	9	12	15	
16	...	10	12	15	
18	...	10	12	15	
20	...	10½	12	16	

Precise age, when ascertained, at time of first attack, when there had been one or more seizures before that for which the patient came under treatment:

Males.			Females.		
4	9½	...	4	8½	11
4	10	...	4	9	11
5	10	...	6	9½	15
8	11	...	7	10	15½
8½	11	...	8	10	
9		...	8	10	

The age of the patients admitted with first attacks averaged in males 13·1, and ranged from 4½ to 20; and averaged in females 12·4, and ranged from 8 to 20.

The period of first attack in cases where there had been one or more previous seizures averaged in males 8·3, and ranged from 4½ to 11; and averaged in females 9·1, and ranged from 4 to 15½.

Whether the attack was the first, or there had been one or more previous attacks:

	Cases.
The attack was the 1st in	50
,, ,, 2nd in	13
,, ,, 3rd in	13
,, ,, 4th in	3
The precise history not ascertained in...	13

Some of them should, however, perhaps, rather be regarded as relapses than as distinct attacks, as it is quite possible the previous attacks had not in all cases been entirely recovered from.

The period which had elapsed between the attacks, when one or more had previously occurred, was as follows.

In cases of second attack.

The first attack had occurred six months before in a girl ten years of age.

The first attack had occurred eighteen months before in a boy eleven years of age.

The first attack had occurred a year before in two girls of nine and a half and twelve years of age, and in a boy of nine.

The first attack had occurred a year and eight months before in a girl of nine.

The first attack had occurred two years before in a boy of thirteen.

The first attack had occurred five years before in a girl of sixteen and in a boy of eleven.

The first attack had occurred six years before in a girl of eleven.

The first attack had occurred seven years before in a boy of ten.

In the cases of third attack.

The three attacks all occurred in one year in a female nine years of age, and in a boy of eleven.

The first attack occurred six years before, and the second four years before, in a girl of twelve.

The first attack occurred four years before in a boy of thirteen.

The first attack occurred ten months before, and the second seven months before, in a boy of twelve.

The first attack occurred four years before, and the second two years before, in a girl eight years old.

The first attack occurred three years before, and the second six months before, in a girl of fourteen.

The first attack occurred two years before, and the second one year before, in a girl of twelve.

The first attack occurred two and a half years before, and the second a year before, in a boy of eleven.

The first attack occurred six years before, and the second a year before, in a boy of eleven.

The first attack occurred six years before, and the second four years before, in a woman of twenty.

In the cases of fourth attack.

All the attacks occurred in three years in a girl of ten years of age.

All the attacks occurred in four years in a girl of thirteen.

And all occurred in five years in a girl of fifteen.

Duration of illness before admission.

In cases of first attack..

1 week	... 3 cases.	6 weeks	... 4 cases.
12 days	... 1 case.	2 months	... 6 ,,
2 weeks	... 8 cases.	9 weeks	... 1 case.
3 ,, (worse 4 days)	... 1 case.	3 months	... 4 cases.
3 ,, ...	... 3 cases.	2 years (worse 6 weeks)	... 1 case.
5 ,, ...	... 2 ,,		

In cases of second attack.

8 days	... 1 case.	4 months	... 1 case.
1 week	... 2 cases.	5 ,, ...	.. 1 ,,
2 weeks	... 1 case.	6 ,, ...	... 1 ,,
1 month	... 2 cases.	Some weeks ...	... 1 ,,
2 months	... 1 case.		

In cases of third attack.

2 weeks	... 2 cases.	5 weeks	... 1 case.
2 weeks ...	... 1 case.	6 ,, ...	... 1 ,,
3 weeks	... 5 cases.	2 months	... 1 ,,
4 ,, ...	... 1 case.	3 ,, ...	... 1 ,,

In cases of fourth attack.

1 month	... 1 case.	3 months	... 1 case.

In cases where the history was imperfect as to previous attacks, the duration before admission was—

2 weeks	... 1 case.	9 weeks	... 1 case.
3 ,, ...	... 2 cases.	3 months	... 2 cases.
4 ,, ...	... 1 case.	3 ,, (worse 1 week)	... 1 case.
6	... 2 cases.	6 months	... 1 ,,

Causes.

	Cases.
No cause assigned or could be ascertained	23
Asserted to have been frightened by father	2
when swinging	1
by a man in the street	1
„ being nearly run over in the street	2
„ animals	5
„ being shut up in rooms or closets	4
„ seeing father in a fit	1
„ „ a boy in a fit	1
„ „ mother in her coffin	1
„ the chimney of the house being on fire	2
„ being thrown into a tub of cold water	1
„ going into the water to help a brother out and walking home in wet clothes	1
„ death of a horse in a cart in which he was riding	1
Frightened, but precise cause not named	2
	25
Ascribed to excitement of singing in supper rooms	1
„ being corrected at school	1
„ „ scolded by mother	1
„ having been teazed by her mistress when in a little place employed nursing a baby	1
„ nursing her mother, who was suffering from cancer, for five months	1
„ family troubles	1
„ overwork and anxiety	1
„ seeing another child suffering from chorea	1
	8
„ driving a van in very hot weather[1]	1
„ having had blows or falls on the head[2]	5
	6

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[1] But the boy had had a severe blow on the head from a box some time previously, and the attack of chorea was immediately preceded by rheumatic symptoms.

[2] In one of them, a girl of 12 years of age, admitted with a first attack of chorea, had had a blow on the head a year before, and was insensible after it. She was never quite well after, being very nervous and twitchy. The immediate cause of the attack was said to have been fright. In another case the attack commenced immediately after the child had had a fall, followed by unconsciousness, but the attack was also ascribed to fright.

	Cases.
Connected with too prolonged lactation	1 or 2
„ pregnancy[1]	3
„ retention or suppression of the catamenia	2 or 3
„ scarlet fever	2
„ rheumatism	8 or 9
„ ascarides	2
„ tænia	1
	21 or 22

One patient had passed a lumbricus a year before, but the choreic symptoms did not commence till five months after.

The period which elapsed between the operation of the exciting cause, where such was assigned, and the first appearance of the choreic symptoms is not regularly recorded, but in 17 cases in which the disease was traced to fright, dependent on different causes, the symptoms are stated to have appeared—

	Cases.
Immediately after in	3
Soon after in	7
The following day in	3
Two days after in	1
A day or two after in	2
About a week after in	1

Connection between chorea and rheumatism.

	Cases.
Were reported never to have had any form of rheumatism	50
„ „ serious illness, but rheumatism not specially named	3
Not known to have had rheumatism	1
	54
Had had rheumatism a month before[2]	1
„ five weeks before	1
„ six „ „	1
„ three months before	1
„ four „ „	1
„ a year before	3

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[1] In one of these cases the pregnancy was very early, in another of three months' duration, and in the third six months.

[2] The times given are those of the commencement of the rheumatic symptoms, and in several of these cases the rheumatism had only subsided immediately or very shortly before the choreic symptoms commenced.

	Cases.
Had had rheumatism two years before and a second attack six weeks „ before, and never quite well	1
„ two years before	1
„ five „ „	1
„ „ „ „ and a second attack after, and never quite well, and the attack commenced with rheumatic symptoms	1
„ eight years before and subject to rheumatic pains	1
„ time not named	1
Had rheumatic pains but not rheumatic arthritis	2
The attack commenced with rheumatic symptoms	7
Rheumatism came on immediately after the chorea began to subside	1
The symptoms came on after getting wet	2 ?
	24 or 26 [1]

In the 7 cases in which the symptoms of chorea commenced with rheumatic symptoms—

In 2 there were no signs of cardiac disease.

In 1 the sounds of the heart were flat and the action irritable, but there was no murmur.

In 1 there was a murmur at the base, which, however, was afterwards obviously in the pulmonary artery, and disappeared before discharge.

In 1 the sounds were noisy, but there was no murmur.

In 2 there were decided signs of cardiac disease.

In the case in which the rheumatism came on immediately after the partial relief of the choreic symptoms there were decided evidences of peri- and endocarditis.

State of the heart.

	Cases.
Sounds and action natural	20
Sounds noisy, but no murmur	28
Sounds flat, but no murmur	8
Slight prolongation of first sound at apex	1
Action irritable	1
Action irritable, and slight prolongation of first sound at apex	1

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[1] In a case admitted with a third attack the first was said to have commenced with rheumatic symptoms, and in a case admitted with a second attack rheumatism was reported to have immediately followed the first attack.

	Cases.
Slight prolongation of first sound, but no decided murmur	1
Sound at apex noisy and action abrupt, and afterwards murmur in the course of the pulmonary artery	1
First sound noisy, and afterwards quite natural . .	1
Slight systolic murmur over a limited space at the apex	1
Slight murmur at base and action abrupt, and afterwards murmur in the pulmonary artery . . .	1
Slight systolic murmur over whole præcordial space .	1
Sounds somewhat rough, but without murmur . .	1
The action and sound of the heart were quite natural in	20
There were slight signs observed in	46

Thus, in 28 the sounds are stated to have been noisy, but there was no distinct murmur.

In 8 cases they were flat, but without murmur.

In 13 cases there were murmurs heard at the base or over a limited space at the apex, or the action of the heart was irritable and afterwards the action and sounds became natural, or with the other signs there were murmurs in the course of the pulmonary artery or in the veins of the neck. In some of these 46 cases, therefore, the disorder of the heart was probably only functional or dependent on an anæmic condition of the blood.

There were decided signs of heart disease in 14 cases.

Of the 20 cases in which the action and sounds of the heart are stated to have been quite healthy—

In 2 the attack of chorea commenced with rheumatic symptoms.

In one it followed immediately after the subsidence of rheumatism.

In one case the patient was reported never to have had rheumatism.

In one case the patient is said never to have had any serious illness, but rheumatism is not specially mentioned, and in 3 cases there is no report on this point, so that there are only 12 in which it is positively stated that the patient had never had rheumatic symptoms and in which there was no suspicion of heart affection.

Special symptoms and complications.

	Cases.
The patients were very excited, or maniacal and restless in	4
Suffered great and persistent mental depression in	1
The chorea was partial in	7
It was almost entirely limited to the right side in	2
Entirely limited to the left side in	1
It affected almost entirely the head and upper extremities in	1
It consisted chiefly in loss of power over the right arm and leg in	1
There was peculiar rhythmical movement of the right arm and leg, with impairment of power, in	1
There was marked loss of power in the right arm and leg, and slightly of the left leg[1] in	1
The movements commenced on the left side, and afterwards involved the right in	4
They occurred on the right side, and afterwards involved the left in	1
The speech was very difficult and imperfect in	8
Deglutition very difficult in	1
There were slight bronchitic symptoms in	2
The glands of the neck were swollen and suppurating in[2]	1
There was paronychia in	1
There was an abscess on the scalp in	1
There was an eruption of herpes about the mouth in	1
There was an eruption of acne about the face in	1

Of the 14 cases in which there were decided signs of heart disease, 2 were twice under treatment, so that there were only 12 distinct cases, and of these—

	Cases.
Had never had any form of rheumatism in	4
The attack commenced with rheumatic symptoms in	1

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[1] In this case the attack commenced with dizziness while the child was walking, but he did not fall. In another case the attack commenced with a kind of fit. M. Sée mentions the occasional commencement of chorea with dizziness, and sometimes with epileptic convulsions and loss of consciousness.

[2] The patient died a month after discharge from the hospital.

	Cases
The chorea immediately followed the subsidence of rheumatic symptoms in	2
The rheumatism came on immediately after the subsidence of the choreic symptoms in . . .	1
There was no obvious exciting cause, but the attack came on at the catamenial period in . . .	1
The attack was the second; and the first seizure, which occurred two years before, commenced with rheumatic symptoms in	1
Had had acute rheumatism when two years old (eight years before), and was subject afterwards to rheumatic pains, and the chorea came on after going into the water and walking home in wet clothes in	1
Was very imperfectly reported in	1

Abstract of cases in which there were decided signs of heart disease.

1. Elizabeth C—, æt. 12. First attack, of four days' duration. Had scarlet fever nine years before, but never had any form of rheumatism. No obvious exciting cause for the attack. Decided systolic murmur heard over the whole præcordia. Heard most distinctly at the base, and still existing at the time of discharge. Bronchitic wheezing in chest.

2. James H—, æt. 10. Had rheumatism at two years of age, and afterwards dropsy, and since subject to rheumatic pains. Murmur at the heart, and still remaining at time of discharge. Ascribed to having been alarmed by going into the water to help a brother out and walking home in wet clothes.

3. Emma T—, æt. 17. First attack, of two weeks' duration. The chorea commenced while she was suffering from rheumatic symptoms. She died, and the results of recent peri- and endocarditis were found on examination, with great congestion of the brain and its membranes.

4. M. A. G—, æt. 14. Third attack, of three weeks' duration; first attack occurred three years before. There was no obvious exciting cause, but the attack occurred at the cata-

menial period. She had never had rheumatic scarlet fever or any other serious illness. A loud murmur was heard between the nipple and the lower end of the sternum, and there was also a murmur in the course of the pulmonary artery. At the time of discharge there was a slight prolongation of the first sound, and the murmur in the course of the pulmonary artery remained.

4A. M. A. G—, æt. 15. Fourth attack, all within five years. On readmission, about two years after, no obvious exciting cause for the existing attack. A systolic murmur was heard over whole præcordia, loudest at apex, and also audible towards left axilla and behind.

5. Edward P.—æt. 11. Second attack, of two months' duration, severe for seventeen days. The first occurred a year before. Systolic murmur heard most distinctly at apex. The first attack commenced with rheumatic symptoms, but had never otherwise had rheumatism and never scarlet fever.

5A. Edwin P—, æt. 12. Third attack, of two months' duration; the first occurred two years before, and it commenced with rheumatic symptoms. There was a murmur at apex. In the third attack the præcordial dulness was increased in extent; murmur heard over whole space, but most loudly at apex, and heard also in left axilla behind, and still remaining at time of discharge. No obvious exciting cause for this attack.

6. Ellen S—, æt. 11. First attack, of two months' duration before admission. No obvious exciting cause. Had variola when two years old, but had never had rheumatism, scarlet fever, or any other serious illness. A systolic murmur was heard at the apex, and thence towards the left axilla and at the lower angle of the scapula, and was still present at the time of discharge, eighty-nine days after admission.

7. George H—, æt. 14½. First attack, of three and a half months' duration. Murmur (?) presystolic, heard at the apex, where also there was a purring tremor. Had had a rheumatic attack, which commenced three months before, and only subsided a week before the appearance of the choreic symptoms.

8. Annie S—, æt. 11. Second attack, of one week's duration. The first occurred six years before, and was of three months' duration. At the time of admission the action of the heart was irritable, and there was a soft murmur heard at the

apex, and still present twenty-five days after. She had never had rheumatic or scarlet fever.

9. Samuel James H—, æt. 11. Third attack, of three months' duration. The three attacks occurred in one year, and the first was after a bad fright. Was suffering from ascarides when admitted, and when the choreic symptoms were beginning to subside rheumatism came on. She had peri- and endocarditis.

10. Frederick K. M.—This case is imperfectly reported, but there was a murmur over the whole præcordia. The patient was only a short time in the hospital, and was removed by his friends.

11. Elizabeth P—, æt. 9. First attack, of three months' duration, ascribed to having sat by the side of another child with chorea. The patient had had scarlet fever six years before, and a slight attack of rheumatism a month before the choreic symptoms appeared, and the symptoms had scarcely subsided a week before. She died, and the lining membrane of the left auricle and ventricle was thickened, and rough in places, and there was a thrombus in the auricular appendage.

12. Adelaide M—, æt. 13. Fourth attack, of three months' duration. All four occurred during four years. She had never had rheumatism, scarlet fever, or any other serious illness. A rough murmur was heard over the whole præcordia and was loudest at the apex and was heard towards the left axilla and behind, and this was still heard at the time of discharge, but there was also a murmur in the course of the pulmonary artery.

Result.

Of the ninety-two patients discharged from the hospital there were—

	Cases.
Relieved, but not cured	5
Unrelieved	1
Were removed by their friends, not cured	2
Left at their own desire, not cured	4
Was removed in consequence of the appearance of variola	1
In consequence of becoming maniacal	1

	Cases.
Had swellings of the glands of the neck and suppuration, and died a month after discharge	1
Died during the attack of chorea	3
	18
Were reported to have been cured	74

PART II.

The inferences to be drawn from the previous observations correspond generally with those deduced from other similar collections of cases in showing that chorea is essentially an affection of females, and especially at the early period of life.

This will be still more apparent from the following table, which exhibits the age and sex of the patients in the cases now collected, together with the thirty-one previously reported upon, amounting in all to 123.

	Males.	Females.	Total.
5 to 10 years of age	10	25	35
10 to 15 ,,	23	39	62
15 to 20 ,,	3	15	18
20 to 30 ,,	1	5	6
30 to 57 ,,	0	2	2
	37	86	123

Proportion of cases at different ages.

5 to 10 years of age	28·4 per cent.
10 to 15 ,,	50·4 ,,
15 to 20 ,,	14·6 ,,
20 to 30 ,,	4·8 ,,
30 to 57 ,,	1·6 ,,

Proportion of males and females at different ages.

	Males.	Females.
All ages	30 per cent.	69·9 per cent.
5 to 10 years of age	28·5 ,,	71·4 ,,
10 to 15 ,,	37 ,,	63 ,,
15 to 20 ,,	16·6 ,,	83 ,,
20 to 30 ,,	16·6 ,,	83 ,,

It will be seen that by far the largest proportion of patients admitted with chorea were between five and ten and ten to fifteen years of age.[1] Indeed, 97 of the 123 cases, or 78·8 per cent., were at these periods.

In one respect the result differs somewhat from the generally received opinion. It is commonly thought that the proportion of cases in the two sexes does not materially differ in early life, and that the excess in females only becomes marked at and after the period of puberty. It will be seen, however, from the facts here collected that the cases in females are more numerous than those in males between five and ten years of age, though certainly the excess becomes greater after fifteen. This is shown if the cases between five and ten and ten and fifteen be compared with those between fifteen and thirty.[2] In the former period the proportion of males is 34 per cent., and of females 65·9 per cent. ; and in the latter period males 16·6 per cent., and females 83·3 per cent.

The influence of age in the development of chorea is, however, better illustrated by the ages of the patients who came under treatment for first attacks only, or in the case of those who had had previous seizures—by the age at which the first attacks had occurred, than by calculations founded upon enumerations of the ages of the whole of the cases under treatment in a given period.[3] From the statements given in the tables it will be seen that the affection most commonly commences between the ninth and tenth and the thirteenth and fourteenth years of age, and there does not appear to be any very marked difference in this respect between the two sexes, so that the facts do not indicate that the establishment of the catamenial function exercises so much influence on the production of chorea as has been supposed.[4] Indeed, the much larger proportion of females who suffer from the affection after the period of puberty seems to be rather due to the diminution of its frequency in males after the age of fifteen or twenty. Indeed, chorea is very seldom seen after the age of twenty in males. The oldest male patient in the cases here collected was only twenty-three years of age, while there were two females of forty-eight and fifty-seven years old. The latter of these cases may not have been truly chorea, for the patient had never previously had chorea, and the attack gradually lapsed into paralysis agitans. In the other cases, however, the patient had chorea before and completely recovered. The true explanation of the facts seems to be that the susceptibility to the affection is greatest in both sexes at the earlier and more emotional periods of life, but that in males this susceptibility nearly passes away at or about the period of puberty, while in females it persists, though with diminishing force, to early womanhood and middle age.

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[1] M. Sée, in a paper in 'Mém. de l'Acad. Nat. de Méd.,' t. xv, 1850, states that of 531 cases treated at the Hôpital des Enfants in twenty-two years, 138 were boys and 393 girls, or 26 and 74 per cent. respectively.

[2] The proportion of the cases at these ages is at 5 to 15, 78·8 per cent. ; and at 15 to 30, 21·1 per cent.

[3] M. Sée states that of the 531 cases, before referred to, 28 were under 6 years of age, 218 were between 6 and 10, and 235 between 10 and 15. In these periods the proportions were 41 and 44·2 per cent. respectively.

[4] M. Sée makes a similar remark in reference to his calculation of the periods at which the attacks of chorea commenced.

Sir Thomas Watson states that, in his experience, chorea appears to be more common in children having dark hair and eyes than in those of a fair complexion. In the cases reported upon the notes are not very numerous on this point, but as far as they go they do not seem to confirm this supposition. Thus, of 40 cases, in 20 the patients are said to have been of fair complexion, in 13 they were of dark complexion, and in 7 the complexion was not well marked, but was rather dark than light. What is, however, probably of more importance in entailing a susceptibility to chorea is the state of health and vigour of constitution, and I find that in a very large proportion of the cases the children are described as being small, thin, pale, or ill grown and delicate looking, and in only three or four out of the whole number were they said to be well grown, healthy, and well nourished. It may safely be concluded that in almost all the cases careful inquiry was made as to the causes to which the attacks were probably to be ascribed. In 23 cases it is expressly stated that no cause could be ascertained to which the chorea was directly traceable, and in 39 cases causes were assigned, some of them being, however, such as, though they might have predisposed to the attacks, could scarcely have been direct exciting causes. Of 39 cases in which exciting causes were mentioned mental emotions constituted about 33 of the number, and in 25 or 26 of them fright was blamed, and it is possible in some of the others, as, for instance, where slight injuries had been received, the choreic symptoms may rather have resulted from the alarm of the patient than from any injury sustained.

In one case both parents were reported to have had chorea when about the same age as the patient, and in another the father was said to have been affected in early life. In one case the patient had had fits in infancy, another was epileptic, but had not had convulsions for two years; one patient's father, and another's sister, was epileptic. In one case the attack was ascribed to having seen a child labouring under chorea, and in another the symptoms were aggravated by the same cause. It is curious, considering the importance which some of the older writers ascribed to worms in the alimentary canal as giving rise to chorea, to find how rarely worms were met with in these cases. It will be seen that in two or three cases the patients had ascarides, and in one tænia; one patient had passed a lumbricus a year before, but the choreic symptoms did not appear till five months after, and one or two other patients were said to have had worms some time previously.

In one case the chorea was ascribed to prolonged lactation. In three cases it occurred in connection with pregnancy, and in two or three with retention or suppression of the catamenia. In two cases it followed scarlet fever, and in eight or nine it occurred in connection with rheumatism.

The relation between the attacks of chorea and the existence at the time, or previously, of rheumatism, was carefully enquired into.

In fifty cases the patients were expressly stated never to have had rheumatism. In three others they were reported never to have had any serious illness before the occurrence of the chorea, but rheumatism was not specially named, and in one case it was stated that rheumatism was not known to have pre-existed.

In twenty-four cases[1] the patients had had rheumatism, and in two other cases the chorea appeared after the patients had got wet. The period which elapsed between the rheumatic attack and the appearance of the choreic symptoms ranged from a few weeks to several years, but in some of the cases the rheumatism had only just subsided when the chorea began; in other cases, where the period had been more prolonged, the patients were stated to have been subject after the attack to pains in the limbs. In eight cases the chorea commenced with rheumatic symptoms.[1] In one case the rheumatism came on immediately after the choreic symptoms subsided, and the patient had decided peri- and endocarditis.

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[1] Of 58 cases in which rheumatism is mentioned in the digest of cases published in the 'Guy's Hospital Reports,' by Dr. Hughes and Mr. Burton Brown, vol. i, 3rd series, 1855, p. 248, 30 are said never to have had any rheumatic symptoms, and 28 had had some form of rheumatism; of 26 cases included in my former report 9 had had rheumatism previously to the chorea, and 17 had not had any form of rheumatism.

The condition of the heart is reported in eighty-one of the cases. In twenty its action and sounds are stated to have been quite healthy. In forty-six there were slight indications of cardiac affection, though probably in some of them the symptoms were rather due to functional disorder and to the state of the blood than to disease.

In fourteen instances, which, however, only represent twelve distinct cases, there were decided signs of disease of the heart. One patient admitted with a first attack of chorea, and who had never had rheumatism, was reported to have suffered from palpitation after fright, a year before, but during the attack of chorea the only indication of heart complication was that the first sound was somewhat prolonged, but there was no murmur.

It will be seen that of the cases in which the previous existence or otherwise of rheumatism is reported upon, there were only twelve in which the sounds and action of the heart were quite healthy and in which the patient had never had any rheumatic symptoms. It will also be noticed that the existence of decided heart affection was not limited to cases in which the choreic attack commenced with rheumatism, or in which the patients had previously had rheumatism. On the contrary, in some of the cases in which the attack commenced with rheumatism, the heart's sounds and action were stated to have been quite healthy, and in some of those, in which there were decided evidences of heart disease, the patients had never had any rheumatic symptoms either previous to, or during, the choreic attack. This seems to indicate that rheumatism rather gives rise to chorea by directly affecting the brain and spinal cord or their membranes than by causing heart affection, and so secondarily involving the nervous system.

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[1] M. Sée says that of 128 cases observed at the Hôpital des Enfants, in 61 the chorea coincided with rheumatism, 32 of the cases displaying swelling, redness, and tenderness of the joints, and 29 fixed pain increased on pressure.

It is well known that chorea very often begins by affecting only one side of the body; generally, however, no long time elapses before both sides are involved, though occasionally, more particularly in the slighter cases, the movements continue to be very much limited to one side, and more frequently one side is more affected than the other, and sometimes this persists throughout the attack.

Of the cases reported upon, in seven [1] the affection was only partial.[2] In three it was completely limited to one side. In a fourth it involved the face and extremities of one side. In a fifth it was almost limited to the face and upper extremities. In a sixth it consisted more in loss of power over one arm and leg, and slightly in the other leg, than in the irregular movements, and in this instance the attack commenced somewhat suddenly with dizziness.[3] In the seventh case there was peculiar spasmodic movement of one arm and leg, with impairment of power. In five cases the attack commenced on one side and then involved the other, and in several the movements were throughout the attack more marked on one side than on the other.

In eight cases speech was affected to a much greater degree than is usual in chorea, so that it was very difficult and almost unintelligible.

In one case there was great dysphagia. In one instance the movements are reported not to have entirely ceased during sleep.[4]

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[1] This series of observations was collected from the in-patients, and the cases were, therefore, generally severe; a series collected from the out-patients would probably contain a larger proportion of slight and, therefore, of partial cases.

[2] M. Sée says that of 223 cases 64 were cases of hemi-chorea and 16 of partial chorea; when only one side is affected, or the movements are more marked on one side, it is the left which is chiefly involved. Of 154 cases, 97 were affected chiefly or entirely on the left side.

[3] M. Sée refers to the occasional commencement of chorea with dizziness, or even with epileptic convulsions and loss of consciousness. In two of the present cases the attack commenced with a kind of fit.

[4] M. Sée says this occurred in 6 out of 158 cases, the sleep being extremely disturbed in consequence.

The accidental complications which occurred in these cases were, in two instances, bronchitis. In one, swelling and suppuration of the glands of the neck. In one, paronychia, and in one an abscess in the scalp. In one case there was an eruption of herpes about the mouth, and in one of acne on the face.

In four cases there were marked symptoms of cerebral disturbance, the patients being excessively restless and excited, and one of them had to be removed from the hospital, maniacal; and in another there was great and persisting mental depression.

The treatment which was adopted varied somewhat in the different cases.

In a large proportion of cases of chorea there is evidence of disorder of the general health and of the digestive organs, the tongue being furred and the bowels confined. When this was the case a purgative was usually first prescribed, such as a calomel and rhubarb powder, or some blue pill and rhubarb, and this was combined with the stomachic mixture (a cold infusion of rhubarb and gentian with soda and ginger), and this treatment was continued till the symptoms of disorder of the digestive organs subsided. In some cases, under this treatment, the choreic movements almost wholly disappeared. In others they were greatly relieved, and the patient was then put upon a tonic course of treatment, quinine and iron with cod-liver oil and a nutritious diet, and an allowance of wine. In others, when the tongue became clean, but the choreic movements still continued, nervine tonics were used; if the patient was pallid and anæmic the chalybeate remedies were generally first employed, preference being given to the saccharine carbonate of iron, in doses of five, ten, or twenty grains, three times daily. In other cases citrate or sulphate of iron was given. If, after a fair trial of this, there was little or no obvious improvement in the state of the patient, sulphate of zinc was prescribed, in doses of one or two grains, three times daily, and the dose was increased by one or two grains twice a week, till sickness or nausea was produced or till the symptoms subsided.[1] Not unfrequently the zinc was first given, and either remedy was replaced by the other, or by the

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[1] The zinc appears to be more efficacious when the dose is rapidly raised.

Liq. Arsenicalis, if no satisfactory improvement was seen at the end of a week or fortnight. The amendment is often very gradual, and seems rather to accord with the improvement in the general health of the patient than to follow quickly after the use of the remedy. A very good test of the advantage of the treatment is afforded by the state of the pupil; generally, when the symptoms are very active, it is large and shows little or no action under the stimulus of light, but as the symptoms subside, it diminishes in size and is much more readily affected by light.

The movements are occasionally so constant and severe that the patient gets little or no rest at night, and so becomes rapidly exhausted, and the back is apt to chafe and bed sores to form, and indeed it is in this way that the cases generally prove fatal. It becomes, therefore, of great importance that the patient should be quieted and anodynes are required for this purpose. I have generally preferred to give Dover's powder, frequently in combination with henbane, either at night or at intervals during the day. Sometimes morphia has been used in a similar way, and occasionally it has been employed hypodermically; and more recently chloral has not unfrequently been given at night.

The use of the shower bath, either cold or tepid; or, when the patient is timid, of ablution with tepid or cold water, is often of use in effecting a complete cure after the active symptoms have subsided; and when the patient becomes prostrated nutritious food and wine must be given; and I have sometimes seen great advantage from the use of nutritive enemata with wine, where the patient was becoming rapidly exhausted and could not take an adequate amount of food by the mouth. In one very severe case, in which the skin was excessively dry and harsh, great relief was obtained by the use of the warm bath, followed by the inunction of warm oil.

The table shows the frequency of recurrences or relapses in cases of chorea. In the present series of cases fifty out of seventy-nine were cases of first attack, thirteen were cases in which there had been one previous seizure, in thirteen there had been two, and in three, three previous attacks. In the former series, twenty-two out of the thirty-one cases were first attacks, and in nine there had been one or more previous seizures, so that of the whole 110 cases, seventy-two were cases of first attack, and in thirty-eight there had been one or more previous seizures.[1]

The period which elapsed between the seizures will be seen to have ranged from some weeks or months to several years, but when the interval had only been of short duration, the recurrence should rather be regarded as a relapse than as a distinct attack, the previous seizure not having been probably completely recovered from.

Of the ninety-two cases, in five the patients were discharged from the hospital relieved, but not cured; one patient left unrelieved, and nine others were removed by their friends before the cure was complete; three died in the hospital, and one who left with swelling and suppuration of the glands of the neck, died a month after discharge. The remaining seventy-four are reported to have been cured, and may all be concluded to have been nearly, if not quite, free from choreic symptoms at the time of their discharge.

The mortality which occurred in these cases is very similar to that reported by Dr. Hughes. If the 100 cases tabulated in his first paper, four died; and of the 209 cases in the second paper, by Dr. Hughes and Mr. Burton Brown,[2] seven died, either from the affection or coincident diseases, making a total mortality of ten in 309 cases. Of my former cases, one out of thirty-one died, or four out of the whole 123.

The ages of the patients who died were nine, eleven, twelve, and seventeen; and in all the cases the attack was the first, which would seem to indicate that neither the age of the patient, nor the circumstance that they had had previous attacks, materially influence the result.

All but one of the patients were females.

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[1] M. Sée says of 158 cases 37 had relapses or recurrences. In 17 of these there were two attacks; in 13, three ; in 6, four; and in 1 case, seven.

[2] 'Guy's Hospital Reports,' 3rd series, vol. i, 1855, p. 217. M. Sée says that of 158 cases 9 terminated unfavorably, either from the chorea or the disease with which it was associated.

PART III.

Case 1. *Very severe chorea coming on immediately after a rheumatic attack; very great restlessness and delirium; recovery.*—Emma F—, æt. 15, a laundress, admitted into Alice Ward on the 12th May, 1875, labouring under a first attack of chorea of two weeks' duration. She is a stout, well-grown girl, with dark hair and grey eyes, and face well coloured. With the exception of having had scarlet fever when four years old, she has had no illness till she had an attack of rheumatism five weeks ago. The choreic symptoms commenced as the rheumatism subsided, and advanced gradually without having been preceded by any obvious exciting cause. She was directed to have a calomel and rhubarb powder, and to take five grains of the saccharine carbonate of iron three times daily.

May 14th.—The movements are most marked in the head and upper extremities, and both sides seem equally affected. She can protrude her tongue and retain it protruded steadily. The pupils are natural. The tongue large and furred. The catamenia regular. The action of the heart is irritable, and there is a rough murmur heard at the apex. She speaks hurriedly, and in a kind of whisper. She has no difficulty in swallowing. She had twenty grains of chloral last night, followed by a hypodermic injection of half a grain of morphia, but she did not get any sleep till 2 o'clock in the morning.

18th.—On the 16th she became very raving and excited, and had at night a quarter of a grain of morphia, and afterwards twenty grains of chloral, and as at 2 o'clock on the following morning she had not slept, the chloral was repeated, and she then went to sleep and slept well, and continued to sleep at intervals during the 17th. The chloral was repeated at night, and she passed a good night and awoke quiet. The temperature last night was 100·4°. This morning it is 100·2°. The heart's action is irritable, and the sounds are flat.

25th.—She has not been so well. She is in continuous movement in all parts of the body, but more particularly the upper extremities. She scarcely sleeps at all at night. The tongue is large, dry, and fissured. She takes food well. She was directed to take sulphate of zinc in infusion of valerian three times daily.

June 1st.— On the 28th, as she was very restless, she had half a grain of morphia injected hypodermically, and it was repeated four times on that day and on the 29th, after which she got a little sleep, but in the morning the movements again became almost constant. On the 30th she had two injections of a quarter of a grain each, and one of one third of a grain, and at midnight twenty grains of chloral. After this she slept continuously for three hours, and after an interval for two hours more. During sleep she was nearly, but not quite quiet, and she continued so for some time after she awoke; the pupils, which had previously been large were somewhat smaller after the injections. In the afternoon of the 31st she again became excited, and the injection was repeated, and a second given at night, and at about half past 1 a.m. twenty grains of chloral was given. Since that she has been quite quiet, but has not slept much. On the 30th she was directed to take three minims of Liquor Arsenicalis t. d. in place of the zinc.

4th.—On the 1st she had a warm bath, the skin being very harsh and dry, and was rubbed with warm oil after it. She did not perspire, but the skin was much less harsh, and she was much soothed and slept comfortably at night, and in the middle of the day was nearly free from the movements. She had had two injections of a quarter grain of morphia. The pupils were not at all contracted, and she remained quite quiet during the 3rd, but did not have a good night. She is now quite quiet except in the hands. She has much more power of extending the arms. The heart's sounds are natural. The temperature last night was 98·4°. She was ordered some solid food, and for several days had some brandy allowed. The skin continues much less harsh than before the bath and the inunction.

8th.—Up to the 5th she had no injection, but as there was then some movement about the hands one was given in the evening. She continued better till the 6th, when she again became very restless and excited. Half a grain of morphia was therefore given hypodermically, but had very little effect in quieting her, and at bedtime the injection was repeated, but as there was still no rest, at midnight twenty grains of chloral was given, and she almost immediately became quiet and slept for an hour and a half, after which when she awoke she was very noisy and excited, and the dose was in consequence repeated, but the effect was still very temporary. On the 7th she had two doses of morphia of a quarter of a grain each. The Liquor Arsenicalis was also increased to five minims. Last night she slept for five hours, and this morning she is much better. She has much difficulty in speaking. She has great difficulty in extending the arms, and cannot keep her hands quiet for a moment. She is delirious at intervals. Since the 2nd she has been placed in the water bed in consequence of the back having began to be excoriated by the constant movement. The back of the head was also denuded of hair, and there was suppuration under the scalp.

11th.—She is decidedly better, and has been so since the last notes were taken. She has had only one dose of chloral each night, and has slept well. She is now quite quiet. She can protrude the tongue and extend the arms and hands without difficulty, although they are still in movement when extended. The pupils are large. She is quite intelligent, and takes her food well. The temperature on the morning of the 9th was 98·8°, and yesterday 99·8°.

15th.—She had a dose of chloral on the evening of the 11th, but was rather excited than quieted by it, and since that she has not had any anodyne, and has been better. She has slept pretty well at night, and has been free from the choreic movements, and has not been at all delirious. At present she has still some difficulty in protruding the tongue, and it is somewhat furred on the dorsum. There are only slight movements about the fingers and face. The temperatures have been uniformly lower, the morning temperature not having exceeded 98°, and the evening temperature being also lower. To take Mist. Stomach. thrice a day.

22nd.—She has continued steadily to improve, and the movements have now almost entirely ceased. She has not had any chloral, and has slept, though her sleep has been disturbed. The sounds of the heart are flat, but without murmur.

On the 23rd of July she was presented cured, but was retained in the hospital to go to Seaford, but on the 15th of

August she again became restless and excited, but was entirely relieved by a dose of chloral, and she afterwards went out quite well.

Case 2. *Chorea, connected with ascarides and attended by rheumatism, with effusion into the pericardium; recovery.*—J. S. H—, æt. 11, residing at Kennington; admitted in Charity Ward, January 3, 1874, labouring under chorea of three weeks' duration. He had had two previous attacks, of which the last occurred a year before. He had never had rheumatic or scarlet fever, and ascribed his attack to being frightened by a man shouting at him in the street. He had considerable difficulty in extending his arms and protruding his tongue, and they were in constant movement. He walked with difficulty and reeled very much when he endeavoured to walk and turn round. There was the remains of an eruption of herpes about the mouth, the angles of which were excoriated, and the upper lip was very tumid. The tongue was large and furred; the bowels were acted upon twice daily.

Under the suspicion that he had worms a calomel and rhubarb powder was given; it acted freely, and the motions contained an immense number of ascarides. The powders were therefore repeated every other day, and all the motions contained worms, though in decreasing numbers. On the 27th he was in every respect better. The tongue was cleaner, he was steadier, and the upper lip was less tumid. He was now directed to take two grains of sulphate of zinc, three times daily. On the 3rd of March the zinc was increased to four grains and on the 10th to six grains, and on the 17th to seven. On the 31st, he was so much improved that he was presented, but he did not leave the hospital, and on the 12th of April he became feverish, and the knees and ankles were swollen and painful, and there was a soft systolic murmur at the apex. In the morning the temperature was 102°, and in the evening 102·4°. On the 13th the morning temperature was 101·3°, the evening 102·8°. On the 14th the morning and evening temperatures were 100·3° and 102·4°, and there were decided signs of effusion in the pericardium. A blister was applied over the heart and one above each affected joint; and the tartrate of potash mixture was prescribed. On the 15th the temperatures were 99·6° and

100·6°. On the 16th 100·4° and 102°. On the 17th 99·1° and 99·8. On the 18th 99·8° and 100·4°. On the 19th 99·6° and 99·6°. On the 20th 99·8° and 98·4°. On the 27th the temperature, both in the morning and evening, had become normal, and he was convalescent; and on the 19th of June he was presented and left the hospital, but there still remained a systolic murmur at the apex of the heart.

CASE 3.—*Chorea proving fatal; great congestion of brain; recent rheumatism, peri- and endocarditis.*—E. T—, æt. 17, a servant, admitted May 19th, 1869, with a first attack of chorea of two weeks' duration. She was an orphan, both parents being dead, and had had only one sister, who, however, was living and healthy.

She was taken two weeks before admission with slight rheumatic symptoms, and when they subsided the chorea came on. At the time of admission there was still swelling, redness, pain, and tenderness in the left wrist, and the right wrist also was painful.

There were constant movements of the head, face, and hands, and she had a peculiar excited manner and answered questions somewhat strangely. The tongue was furred. The first sound of the heart was somewhat noisy, but there was no murmur, and the dulness on percussion in the præcordial region was not extended beyond the proper limits. The pupils were very large and were scarcely at all affected by light. She had great difficulty in protruding the tongue, but could retain it with some steadiness when protruded. There was constant movement of the head and extremities, and she was much disposed to cry. The urine was passed in fair quantity and had a sp. gr. of 1025, and did not contain albumen.

On the 21st the rheumatic symptoms had subsided, but the chorea was rather increased, though she had had very little rest; ♏xv of the solution of morphia was given at night. On the 23rd the dose was increased to ♏xxx, after which she was somewhat quieter and got some rest. She, however, continued in constant movement and rapidly became exhausted, and died on the 24th, seven days after admission into the hospital and fourteen after the supervention of the choreic symptoms.

The membranes of the brain were very much congested on the convex surface; the vessels were intensely injected and some of them had minute extravasation around them. The substance of the brain and spinal cord was natural, except that the red dots were unusually numerous. The vessels at the base of the brain presented no appearance of disease.

The pericardium was smooth over the greater part of its extent, but at the lower part of the left ventricle in front there was a deposit of lymph over a limited space, where also the two layers were adherent. The heart weighed 8½ ounces; there were some rough deposits of lymph on the endocardium of the left auricle, and minute but firmly attached vegetations about the corpora Arantii of the aortic valves. The other organs of the body were healthy, except that the bases of the lungs were congested.

Case 4. *First attack of chorea fatal by exhaustion.*—E. G—, æt. 12, of fair complexion, with light brown hair and grey eyes, admitted into St. Thomas's Hospital May 9th, 1870, with a first attack of chorea of ten days' duration.

Her father and mother and all the family are alive and healthy. She has never had rheumatic fever, scarlet fever, or any other serious illness. Her attack is ascribed to her having been teased by her mistress when in service, employed in nursing a baby. She is in constant movement in all parts of the body, so as to be incapable of standing or walking, or of getting any sleep at night. She is somewhat thin, but fairly grown, and well coloured. The tongue is thickly coated with a whity-brown fur, and the papillæ project. There is an eruption on the lower lip. The heart's sounds are somewhat flat, but without any murmur. She was directed to have a calomel and rhubarb powder, and to take sulphate of zinc in infusion of valerian three times daily, and a pill with hyoscyamus and Dover's powder at night.

On the 14th of May the temperature in the evening was 100° F.

On the 16th 99·5° in the morning, and 99·5° at night.

On the 20th she had had a better night, and was somewhat quieter, but could not stand or protrude her tongue. The pupils were large and fixed. The bowels confined. She took her food well. The inspiratory movements were so irregular that it was impossible to number them, but they were not rapid. The heart's sounds natural. The choreic movements were more marked in the right arm and leg than in the left limbs. The dose of zinc had been increased to eight grains, and had not made her sick. It was directed to be discontinued and replaced by ten grains of the saccharine carbonate of iron, and she was to have quarter of a grain of morphia with extract of hyoscyamus at night.

On the 27th she had got somewhat more sleep, and was altogether quieter. As she was becoming exhausted she was ordered some wine.

On the 31st she had become more excited, and had had scarcely any rest during the night. The morphia was increased to one third of a grain, and on June the 1st ten grains of chloral were given at night with the morphia. The following day, as she got little or no rest, twenty grains of chloral were given at bedtime, and repeated after an interval of two hours. This, however, did not procure much rest, and she remained in constant movement, throwing herself about and grinding her teeth. The pupils were large, and almost insensible to light. The action of the heart was irritable, but there was no murmur. A blister was directed to be applied down the spine, and the chloral to be increased to thirty grains, and as she had not slept the dose was repeated in the morning. She then slept, but on awaking the movements recurred as constantly as before. She was becoming exhausted, and the back was red and excoriated by the constant movements, and the lips fissured.

In the evening of the 6th a quarter of a grain of morphia was given, but with very little effect. The allowance of wine was increased, and food and stimulant was given at frequent intervals, and nutritive enemata with brandy were administered, but were not retained.

In the evenings of the 7th and 8th the morphia was repeated, and though she was quieter she became weaker; the bowels were relaxed and the motions were passed involuntarily, and she died exhausted on the 12th, thirty-four days after her admission into the hospital, and forty-four from the commencement of the symptoms.

On post-mortem examination the brain and its membranes were carefully examined, but, except some congestion of the pia mater, appeared quite healthy. The heart weighed 8¼ oz. and, together with the pericardium, was quite healthy, and there were no vegetations on any of the valves, and the vessels at the base of the brain and their branches were free from any appearance of disease and did not present any clots. Their coats were natural in thinness and transparency, and the substance of the brain and spine retained their natural consistency, but the vessels of the pia mater were somewhat turgid. All the other organs were healthy.

CASE 5. *First attack of chorea, proving fatal; old heart affection.*—Ellen P—, of a somewhat dark complexion, with brown hair and grey eyes, æt. 9, admitted with a first attack of chorea on the 14th of June, 1870.

Six years before she had scarlet fever, and about a month before her admission into the hospital had slight pain and swelling of the ankles, with which she was laid up for a week and a few days. After her recovery, without any obvious exciting cause, she began to have choreic movements in all parts of the body.

When admitted into the hospital the symptoms were very marked, but she was able to walk to bed. She was a small child for her age, but well coloured. She was directed to have a calomel and scammony powder, and to take one grain of sulphate of zinc in infusion of valerian three times daily.

On the 15th a murmur was heard at the heart, and a blister was placed over the præcordial surface, and a poultice was afterwards applied.

On the 16th, as she had scarcely had any sleep, one sixth of a grain of morphia was directed to be given each night, and the zinc was increased to two grains.

17th.—She had had about six hours' sleep. The choreic symptoms were very marked. She had great difficulty in protruding the tongue, and the different parts of the body were in constant movement, the right arm being particularly affected, and she was much disposed to moan and cry. It was impossible to examine the heart satisfactorily from the constant movements. The pupils were quite natural. The sulphate of zinc was increased to three grains and the morphia to a quarter of a grain.

On the 18th the morphia was increased to a third of a grain and the zinc to four grains, and on the 19th, as she had got scarcely any sleep, twenty grains of chloral was given at night.

On the 20th, being still sleepless, the dose of chloral was ordered to be thirty-five grains, and to be followed by a second of fifteen grains if necessary. The zinc was discontinued, and five grains of the Ferri Carb. c. Sacchar. directed to be taken three times daily instead, and as she was beginning to chafe she was placed on a water bed. The movements were not, however, lessened, and she became, if anything, more excited; the right arm and left leg were especially affected. It was impossible satisfactorily to listen to the bruit. The morphia was directed to be taken in a dose of one eighth of a grain every six hours. She got, however, very little rest, and as she was becoming exhausted it was discontinued, and wine and nutritious food was freely given. She continued, however, to sink, and died on the 23rd, or nine days from admission into the hospital, thirty-five days from the commencement of the symptoms. Before death a very distinct murmur was heard at the heart when it was possible to examine her.

On post mortem examination the arachnoid cavity and the subarachnoid spaces contained an excess of fluid, but the substance of the brain and spinal cord and their membranes appeared healthy, except that the membranes were slightly congested. All the organs of the thorax and abdomen were healthy. There was no appearance of any coagulum in any of the vessels at the base of the brain. The pericardium was healthy. The heart weighed 4½ oz. The lining membrane of the left auricle was opaque and much and irregularly thickened. There were some small vegetations, apparently of old date, at the edges of the mitral valve on the auricular aspect. There was a small thrombus in the auricular appendage. The endocardium of the left ventricle was also opaque and much thickened. There were no vegetations on the aortic valves, though the folds were thickened and opaque. The orifices had their natural dimensions and proportions, except that the aortic was somewhat narrow.

There was no appearance of coagulum in any of the vessels of the brain.

A
CASE OF INTESTINAL OBSTRUCTION,

WITH REMARKS ON

TAPPING THE INTESTINE AS A MEANS OF CURE IN CERTAIN CASES.

By W. W. WAGSTAFFE,
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Intestinal obstruction is a subject of such universal interest that the record of a case in which recovery, for the time at least, took place may be of value, particularly since the relief obtained came after using a means of treatment not very often adopted. It is to this treatment that I am anxious to direct attention, and as it was peculiarly successful in this case there is reason to hope that in other cases of a suitable kind it may be tried and found of service. I have avoided entering into general questions in relation to intestinal obstruction in this paper, and propose first to give some account of the case and then to supplement it by a few remarks.

It is about three and a half years ago (November, 1874) since a gentleman, then only twenty-five years of age and in practice in town, came to me about himself, as he was uneasy at having had several attacks of colic and temporary stoppage of the bowel.

Upon examining his abdomen, to which he directed my attention, as he thought he could feel a lump there, I found that, although he was a very spare man, there was some general fulness; and deep down in the right iliac fossa a lump about the size of half a hen's egg could be felt, slightly movable from side to side and decidedly tender. On manipulating this very decided nausea was produced together with gurgling in the neighbourhood of the lump.

He told me that a year and a half before this, and therefore about the spring of 1872, he had had "typhus fever with abdominal complications and black vomit." What this really meant was difficult to make sure of, but I assumed he had had typhoid fever, with probably ulceration of the bowel. He had recovered from this, and it was only five months before I saw him that he had any temporary stoppage. After getting wet through one day he was seized with cramp, abdominal distension, sickness and constipation, but after two days' dosing with purgatives and enemas he was relieved. Since this he had had four similar attacks, each lasting two days, but the last two attacks had occurred in the previous three weeks, and since the first attack he had never passed a healthy solid motion, but always putty-like.

The attacks began with abdominal distension, tenesmus, then blood and mucus, then pain and obstruction, with vomiting and sometimes delirium. He had never had rigors or hectic.

Here, then, was a case of occasional obstruction, with some discharge of blood, and at the same time a lump of some kind fixed in the neighbourhood of the cæcum. It might be a case of intussusception, or of growth pressing upon the gut, or a glandular mass perhaps suppurating and producing the same effect, or as he had had apparently some typhoid ulceration it might be that the remains of this were contracting or pressing upon the gut. It was hardly likely to be impaction of fæces only, but yet that was a possibility, and the symptoms did not resemble those due to a band or a twist. Anyhow one could only give a guarded prognosis and caution him against errors in diet. But I may remark that he was an Irishman, and with the best intention in the world he did commit errors in diet and with rather definite consequences.

He went away, and at my advice took belladonna whenever he was afraid that an attack of obstruction was on, and without using violent purgatives I made sure that his bowels were cleared of their contents, and yet he could always feel the lump in the same place. I saw him two or three times after, and there was the lump still—no larger, no smaller, not tender apparently, but still there—a thorn in his side and likely to remain one.

I have said nothing about dulness or resonance of the tumour, because I do not attach any importance to the sign, since a piece of intestine may so easily overlap a comparatively small solid growth that resonance is almost always found in such cases. Here, although the resonance which was present was in favour of the view that the tumour was mainly intestine, it did not appear advisable to attach much value to the sign.

On the 19th May, 1875, he indulged in a full meal of beefsteak, and after this vomited. He continued to vomit after everything he took, and was in much pain. The pain was chiefly in the right iliac region. There was tenesmus but no evacuation.

For the next three days there seems to have been less pain, no vomiting, but no evacuation; the skin became more bronzed, the conjunctivæ tinged, the tongue foul, and delirium very marked at night.

On the 24th I saw him, and learned that his attacks had been much more frequent since September, one of them lasting four days. "They commence usually by sweating around the anus, coming on twelve hours before other symptoms; then palpitation, shortly followed by nausea and faintness; then tenesmus and dragging pain, beginning apparently in the upper part of the rectum on the right side; then cramps, violent straining, and distension. For the last six months his motions had never been larger than one's little finger." I found him breathing with some difficulty, complaining of pain of a griping character in the hypogastric and right iliac regions. His abdomen was greatly distended, but without very distinct prominence of the rib, and there was some tenderness in the left hypochondriac region. The skin was deeply bronzed. No evacuation for five days. No sickness now. Urine passed normally. I passed a long tube up the rectum for fully eighteen inches, and injected a pint and a half of water. This came away uncoloured, but without blood. A previous insertion of the tube was reported to have been followed by blood.

On the 25th, after admission into hospital, he was examined by Mr. Simon and Mr. Mac Cormac, who agreed in the advisability of operative interference if no relief was soon obtained.

On the 26th he was no better, but rather worse, and as another enema of castor oil and olive oil failed to do any good, I resolved, before resorting to more serious measures, to relieve the tension of his abdomen, hoping thereby to take off pressure from above the point of obstruction, and possibly by that means allow the fluid contents of the bowel to pass on.

The circumference of the abdomen was now thirty-seven inches and a half. His respirations were 35, entirely in the upper part of his chest. Pulse 140; temp. 100·6.

A puncture was now made with a fine trocar in the middle line of the abdomen, rather nearer the ensiform cartilage than the umbilicus, into, in fact, the most prominent coil of intestine. There immediately followed an enormous escape of gas, not very offensive in smell, the abdominal walls became relaxed, and the breathing was at once relieved. The circumference of the abdomen was diminished by two inches; pulse reduced 14 beats per minute; the respirations still remained about the same in number, but the breathing was at once abdominal.

He had a small dose of morphia afterwards, and passed a quiet night, sleeping readily.

Next day, May 27th, he refilled with gas, and towards the evening his breathing was again interfered with, and although early in the day it had gone down in frequency to 25 per minute it rose again in the evening to 35. The circumference of the abdomen also again increased, and slightly exceeded what it was on the previous day, as it now measured 38 inches. The heart was forced upwards so that the apex was felt beating between the fourth and fifth ribs close to the sternum.

I therefore thought it advisable to tap him again, and used the same small trocar and canula No. 1. The first puncture, a little to the right of the middle line and about four inches below ensiform, only drew off a little fæcal matter, so I very shortly withdrew the instrument. A second puncture, on the same level, but to the left of the middle line, allowed the escape of a rather small quantity of gas and some fæces; this was allowed to go on till only fluid fæces seemed to be escaping. A third puncture, midway between the eighth costal cartilage and Poupart's ligament, produced very little more than fæces. A fourth puncture, above the first over the transverse colon, was more successful, and a large quantity of gas escaped; so that after the operation the circumference of the abdomen was reduced by two inches, and he felt much relieved.

Four hours afterwards he had a good deal of griping pain and loud rumbling in the abdomen, all of which was, however, only preparatory to a complete purging, which began six hours after the last tapping, and lasted for nearly three days without any special feature worthy of notice. The stools, at first watery, became more consistent, and were never bloody.

And now, after three days, occurred a complication which is worthy of record, as it shows what a punctured intestine will bear without serious results following.

I have said he was a doctor, and doctors, doubtless, make bad patients, and on the fourth day after these numerous tappings I found he had been down stairs and out for a walk for nearly an hour, and he was rather proud of having accomplished this feat. It is hardly surprising, therefore, that twelve hours after he had acute pain in the right ilio-lumbar region, tympanitic swelling bulging forwards above the right inguinal region, which he did not hesitate to knead until he dispersed it, as he said. His temperature and pulse rose, and he had pain on taking a deep breath, the pain being referred to about the lower part of the pleura on the left side.

He was treated with morphia in small doses and rapidly improved. After a week of quiet he was up, and although some pain and tympanitic swelling remained in the right inguinal region for a few days, this disappeared after a copious motion, and he went away into the country full of good resolves in less than a fortnight after his tapping.

I saw him from time to time working hard in a harassing practice with his thorn in the side still there—a lump no larger no smaller than before—a source of trouble if he departed from the strict rules of diet laid down for him.

It was nearly a year after his tapping that he sent for me again, and wanted to be tapped again, for he had indulged in four hot-cross buns on Good Friday, and was, as might have been expected, in trouble. He had had a rigor on the Friday evening, vomiting on the Saturday, the bowels slightly opened on the Saturday, with some blood and slime. He declared he had vomited two ounces of blood on the Sunday. The abdomen was gradually becoming more distended, pain was of a crampy character in the right ilio-lumbar region; the vomit was yellowish and consisted of the contents of the stomach, but was not fæcal.

As the abdomen was not fully distended (the circumference was only 32½), I ordered him Ext. Belladonnæ gr. [illegible] every four hours, and in twenty-four hours he passed a quantity of wind, followed later on by four dark, fluid, copious motions. So he was relieved this time by the belladonna and without tapping.

I need hardly say that now he preferred the belladonna treatment, and feeling that he had a ready means of relief he kept some belladonna always ready for use, and I think rather frequently took it.

Three months went by and he sent for me again, but I was out of town. It seems that he had some pain and threatening of trouble on July 1st, was better on the 2nd, and in the evening had to go to a midwifery case, when he fainted and was thought to be intoxicated. He was brought home, seems to have been in a good deal of pain, took some belladonna and was easier, and went to bed. During the night he was heard to go down to his surgery, and apparently mixed himself some medicine. He shortly afterwards became delirious and died in a state of wild delirium, not complaining of pain.

There was no distension of the abdomen then or afterwards, but as I did not hear of his death till some time after, and his relatives were very reluctant to give information about the facts of his death—apparently in fear lest his insurance policy would be forfeited if it should appear that he had committed suicide—I am unable to give any account of the post-mortem appearances.

In the absence of such an examination it is impossible to speak with certainty as to the nature of the obstruction in this case, but it will serve the purpose I most wish if it be allowed to have been a case of intestinal obstruction from some cause. For it is with reference to the treatment of a certain class of cases that these notes are put together more especially. It will, however, be advisable first to glance at some points raised by the consideration of the case.

(1.) What was the probable nature of the obstruction? Our positive facts are important:—A small tumour near the cæcum, very slightly movable and not increasing or varying in size; occasional obstruction after taking indigestible food. Other aids to diagnosis are—a presumed connection with typhoid fever; reported passing of some blood on various occasions.

In a previous paper on intestinal obstructions[1] I grouped the causes of intestinal obstruction under three heads.

1. Those which exist external to the intestinal walls, as bands, adhesions, growths pressing upon intestines, &c.

2. Those in the walls themselves, as twist, intussusception, herniæ diverticula and other deformities, morbid growths, simple and syphilitic strictures, paralysis of the walls, &c.

3. Those in the interior of the intestines, as gas and solids.

Without now going into the arguments for and against these different conditions with regard to the present case, I think we may reduce the possible causes here to three—intussusception, simple stricture from old typhoid ulceration, and adhesions outside the intestine from the same cause.

The only points in favour of intussusception were (*a*) the position, and (*b*) the reported occasional discharge of blood and mucus. But the position is certainly not diagnostic, and would serve equally well for the other suggested causes. And the reported discharge of blood or mucus I could never fully satisfy myself of.

The second and third causes I should be inclined to associate, since contraction from typhoid ulceration alone is so rare a pathological condition; and to venture the opinion that here we had adhesions about the lower end of the ileum, probably the result of typhoid ulceration, with possibly contraction of the scar, so as to produce narrowing of the tube by internal stricture as well by the pressure of the external adhesions. I suspected that the same adhesions involved the neighbouring rectum or sigmoid flexure, for a tube could only be passed up with difficulty and to a limited distance, and the place where it seemed to meet with difficulty in passing was at the brim of the pelvis, opposite about the situation of the lump which appeared to be connected with the gut near the cæcum.

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[1] 'St. Thomas's Hospital Reports,' vol. iv.

(2.) What was the cause of his death? The data are not sufficient to form any reliable conclusions upon this—whether it was accidental belladonna poisoning, or from some complication arising out of the obstruction, such as extravasation of fæcal contents or passage of a clot.

(3.) The site of the obstruction was partly determined by the position of the tumour to have been in the right side, rather nearer the middle line than the position of the cæcum, and the absence of continued vomiting accorded with the idea of the obstruction being near the lower end of the ileum, just where one would expect typhoid ulceration to occur.

(4.) One must look upon the case rather as one of occasional rather than chronic obstruction, and one is therefore not surprised to find that there was no mapping out of the coils, none of that distinctness which Dr. Hilton Fagge[1] has laid stress upon as characteristic of chronic obstruction.

(5.) There remains now the question of tapping as a means of treatment, either palliative or curative. Here was a case of intestinal obstruction threatening to end fatally, and for which the operation of abdominal section or colotomy were seriously considered and provisionally agreed upon, but which was relieved by what proved to be a simple and comparatively harmless treatment. If it afforded him permanent relief for so dangerous a malady can any rule be laid down for its employment?

Certain features about this case may assist in such an inquiry. This was a case of acute obstruction, suddenly occurring, although the cause had been existing for some time. The abdomen was consequently rapidly distended, the breathing was interfered with, and the heart quickly displaced. The removal of a quantity of gas was likely to give relief to lungs and heart, and to the over-distended gut; and it is in such cases that relief might be anticipated rather than in cases where, for weeks or months, obstruction has been slowly coming on from gradually increasing growth or accumulation.

And is it a serious matter to puncture a piece of intestine? If it contains gas only it is hardly likely to be, for gas only escapes, and as long as there is any distension the gas escapes externally. The simplest example of this is perhaps seen in cattle and sheep, when pricked for over-distension by wind.

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[1] 'Guy's Hospital Reports,' vol. xiv; 'Path. Trans.' vol. xxvii.

A case of enormous distension by gas is reported by Dr. Martyn,[1] of Bristol, where, after an attack of diarrhœa, obstruction occurred, with tenesmus and marked colic, but no vomiting apparently. On the fourth and the sixth day he was tapped with a fine trocar, at first with the effect of relieving him slightly, the second time, however, with the effect of relieving him altogether, for the action of the bowels was started and he recovered without any further complication. The cause of the obstruction was here doubtful; whatever it was, it was not apparently anything permanent, as in my own case. Probably it was due to the rapid decomposition of food producing tympanitis, for it followed diarrhœa, consequent, it was thought, on the patient's taking some fruit. But the clinical conditions were alike—acute distension by gas—and it is for such cases that the operation of tapping is to be urged.

I have put the question—Is tapping a dangerous operation? And I think it must be allowed that if gas only escapes, very little harm can arise, but if fæces bubble up, or only fæces appear, what then? Is it not likely to induce peritonitis? We have proof positive that it need not, from what happened in the case I have narrated. For here, three out of five tappings were almost purely fæcal, and yet, notwithstanding, the patient went out walking three days after, though it is probable he had some local peritonitis as a consequence.

Tapping cannot, however, be looked upon as altogether devoid of danger, for cases have undoubtedly occurred in which acute peritonitis and death have followed the operation, one being a case in which a strangulated hernia had been tapped after the plan recommended by Mr. Maunder.

I had occasion to tap the intestine in another case of intestinal obstruction (curiously enough sent to me by the doctor whose own case forms the subject of this paper), and here only very temporary relief followed. The cause of the obstruction was a scirrhus of the large intestine, and I eventually opened the ascending colon, but he died from rapid extension of the cancerous disease in the liver. At the post-mortem, no local effects of the tapping could be traced, although, as in the other case, some fæces had escaped from the punctures.

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[1] The 'British Medical Journal' for Feb. 7, 1874.

If fæces escape into the peritoneum inflammation, more or less acute, must necessarily follow, and I have therefore adopted the following precaution during the operation. Before withdrawing the canula the end is carefully stopped with the finger, so that no air can get into the tube as it is being withdrawn. The absence of atmospheric pressure as the canula is passing from intestine through peritoneum to the abdominal walls, ensures, I think, the non-escape of the fæcal contents of the canula. After the removal of the trocar there is little tendency of the bowel contents to escape from the puncture, owing to the fact that the intestine contracts considerably, and there is very little peristaltic action immediately in the gut.

The aspirator is open to the objection that it is so often out of order, and also that a suction force is being used, sometimes to the injury of the parts operated on.

It seems to me that we are more than justified in tapping the intestine where it is over-distended with gas and the patient requires relief for his breathing or his heart. We are bound to adopt a measure which is not necessarily a serious one.

But can we expect to relieve an obstruction permanently by doing so? I think my case shows we can; and I may refer to a case narrated to me by my friend Dr. F. Taylor, of Guy's. He remembered a case in which tapping the intestine of its accumulated gas was followed by regular motions, although there had been chronic and slowly increasing but definite obstruction, with all its symptoms, before. The patient eventually died, and at the post-mortem a cancer of the large intestine was found almost entirely occluding the gut, but there was no evidence of ill effects from the puncture.

If mere puncture can permanently relieve, can its mechanism be explained? It seems that a satisfactory explanation of the phenomena is possible. It must, I think, be conceded that occlusion is rarely complete in cases of obstruction by growth or stricture—complete at all events to the extent of preventing the passage of fluid when the tube is examined post-mortem.

In many cases the cause of the obstruction is a knuckly mass of scirrhus, where the upper part of the mass can be pressed down into the lower, very much like the lid of a box, or a conical plug, and the more it is pressed upon the tighter it is shut; or there may be adhesions binding down one part of the intestine, and over-distension of the gut above may throw the tube of the intestine out of a continuous line, and a fold or a bend in it may act just like a flap-valve, and the more it is pressed upon from above the tighter it will be closed.

If, however, pressure be removed from above, the course of fluid fæces will be continued along the original track. The removal of pressure may be by tapping gas, or by opening the gut more freely and letting out fæces, as in colotomy; and, therefore, one would anticipate that sometimes after colotomy or enterotomy for permanent obstruction the passage of fæces by the natural channel would be re-established. This is certainly the case. It was so with the girl who formed the subject of my previous paper,[1] and I have seen it over and over again.

If, therefore, it is comprehensible that so apparently simple a means of treatment may in certain cases of acute obstruction give permanent relief, we have, I think, another important weapon in our hands in the treatment of intestinal obstruction.

I would submit the following propositions with reference to the tapping of the intestine:

1. That there are cases of obstruction in which tympanitic distension of the abdomen is one of the most urgent symptoms.
2. That whether these be acute or chronic, relief is afforded by tapping with a fine trocar.
3. That if due precaution be taken no evil results, such as peritonitis, sloughing, septicæmia, &c., need be anticipated from the operation.
4. That especially in cases of rapid distension, where accumulation of fæces has not been going on for a lengthened period, good is likely to result from the operation.
5. That permanent relief may follow the operation to such an extent as to entitle it to be considered sometimes a

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[1] 'St. Thomas's Hospital Reports,' vol. iv.

curative means, obstruction being removed and not recurring afterwards.

6. That the mechanism of this relief is probably to be found in the removal of pressure above a valvular closure of the intestinal tube, rather than in the relief of an over-distended and, therefore, temporarily paralysed gut.

7. That the operation is worthy of more extensive application than it seems to have met with in this country.

Records of cases of intestinal tapping are not, I think, at all common, but I find in Dr. Hilton Fagge's exhaustive paper on intestinal obstruction, in the fourteenth volume of the 'Guy's Hospital Reports,' three cases with the appearances post-mortem. In the first case (40)—one of chronic obstruction of the lower end of the small intestine by contractions from old peritonitis—the intestine was tapped on the sixteenth day, and a quantity of gas and a pint and a half of liquid fæces evacuated. The canula was left in for more than two hours, when it was obliged to be removed owing to the pain in the abdomen. She died on the thirty-fifth day and no mention is made of any mark on the bowel from the tapping.

In the second case (No. 55), one of twist of the ascending colon, admitted in a dying state, a trocar removed a quantity of gas, which gave much relief, afterwards some fæcal fluid followed, and the trocar was tied in till he died fifteen hours after. At the post-mortem there was no extravasation of fæces by the puncture.

In the third case (No. 56), also of twist, and probably of two weeks' duration, some air and then serous fluid came through the trocar. He died in about twelve hours. The post-mortem notes state that there was a spot of perforation, about a line and a half in diameter, in the centre of an ulceration, but there was no evidence that the trocar had entered here.

These cases, though perhaps not very positive in their evidence, are of some value in supporting the view that the operation is not necessarily a dangerous one.

Trousseau refers to the operation as one to be adopted when there is much distension by gas, but he does not suggest it as a means of permanently relieving an obstruction. Still, his mention of the operation is, I think, some evidence of his belief in its comparative harmlessness.

Only within the last few years tapping the intestine in strangulated hernia has been recommended, and although I have not practised it myself, many cases have been recorded of its success. In a case, however, at St. Thomas's, in which it was done, there seemed very little doubt that it was the cause of fatal peritonitis.

SOME FURTHER

REMARKS ON PLEURAL TENSION.

By WILLIAM H. STONE, M.A., M.B., F.R.C.P.

In the course of the last winter I took up a subject intermediate between physics and medicine, with the wish, if possible, to bring some processes generally attributed to vital action—a very vague phrase—under simple principles of natural philosophy. I spoke of tension in cysts, and showed the difference between pressure within the peritoneal cavity, as in ascites, and in the cell-wall which surrounds an ovarian tumour. I was also able to get a certain measure of the tension which the diaphragm can exercise. It was found that, where the peritoneum is full of fluid, by attaching a gauge to the canula and taking the pressure in inches of water, energetic action of the diaphragm would raise it about two inches, from five to seven inches in cases of ascites. In some instances, as with violent struggling, there was a pressure of four or five inches for a moment, the fluid being jerked upwards, but with steady forced inspiration it rose two inches, the diaphragm exercising a force equal to that column of fluid. I now wish to take the converse of that observation, and have attempted to find the negative pressure on the other side, when the diaphragm becomes tense. Collections of fluid form above as well as below the diaphragm, so that it is easy to introduce the trocar in cases of pleurisy, and estimate the force of the diaphragm in a suctional way.

On going a little further, it becomes obvious that there is another point of considerable importance. We have lately had two or three cases of paracentesis, in which little or no fluid came away. I was at first extremely annoyed at the want of success, but it now appears that other operators have been in the same difficulty. It would seem that we have entertained a false idea as to the condition of liquid effusions in the pleura, and I may therefore begin my remarks on the present subject by speaking of the physical conditions which I understand to preside over expiration and inspiration. Any person who has studied hydrostatics must see that inspiration and expiration are two very different things. Expiration is a simple compression of the tissue of the lung by muscular apparatus around it; but inspiration is a totally distinct process. The visceral and parietal layers of the pleura so completely separate the walls of the chest from the contained lung that the air-containing tissue is not the least obliged to follow the enlargement of the parietes. What does constrain it to follow is the pressure of the external atmosphere going in at the trachea. It is a case of suctional effort as distinct as that of an ordinary pump. Expiration, moreover, is very materially assisted by the elastic tissue which the lung contains so abundantly; this elastic tissue appears to have very much more power than I had, *à priori*, given it credit for, and more, perhaps, than has been given it by surgeons in the operation of tapping. That is the principal practical point to which I hope to come. When you inspire, see what happens; you lift up the ribs in an oblique direction, and also flatten the diaphragm. Now we have an approximate measure of the power of the diaphragm, and if we can arrive at an arithmetical estimate, we have got a stage further than by the old method. Dr. Haughton, in his excellent work, gives us this estimate of the muscular force of the diaphragm. He says, "The diaphragm which forms the upper surface of the abdominal cavity furnishes an example of a convex ellipsoidal muscle. It is used continually in respiration, and occasionally in the expulsion of the contents of the abdomen. Its force is considerable, though not equal to the maximum efforts of the abdominal muscles, and being an involuntary muscle not under our control it provokes the abdominal muscles to take on a violent reflex action; in coughing its effects are sometimes dangerous, as, for example, in cases of hernia. It is therefore important, not merely in a scientific, but also in a practical point of view, to know the amount of hydrostatical pressure it is capable of producing upon the contents of the abdomen." Then he gives the measurement. "From measurements made by me, I infer that the mean curvatures of the diaphragm, when most convex, correspond with circles of 5·601 inches and 5·109 inches in diameter at the two sides of the body, and that the mean thickness of its muscular walls is 0·18 inches." He gives the coefficient of muscular force as 102·55, that is, the diaphragm has a power of lifting a weight or of doing work up to 102½ lbs. That is the force which it can exercise in inspiration; but against this there is a force to be deducted, namely, the elastic power of the lung. This I showed experimentally. I had under the receiver of an air pump an ordinary sheep's lung after the rigor mortis had gone off. It was fastened in the top of the receiver to a tube open to the air. By making a partial vacuum the exact condition of things was established which exists in the thorax when the diaphragm is flattened and the ribs drawn up, and the lung expanded. When the pressure was taken off the lungs contract vigorously by their own elastic power.

The elastic power, even in the dead lung, is very considerable. In the normal condition, the air, by the flattening of the diaphragm and the raising of the ribs, is driven in at the entrance of the trachea, and the lung is forced to expand by atmospheric pressure, by the pressure of a column of air fifty or sixty miles high, and by nothing else; whereas expiration is purely a crushing together of the lungs by the muscular power around.

This touches upon the question of emphysema. I believe emphysema—that is, a morbid expansion of the air-cells of the lungs to be due, not to expiratory efforts, as some authorities say. It cannot be so, but is due principally to inspiratory efforts. My present object is more the natural condition of things, and the alteration of this condition when fluid is in the pleura. Before investigating the tension of the morbid pleura it struck me that I ought to examine the healthy condition. I accordingly asked to be allowed to introduce a trocar into the pleura of a live sheep just before killing. This was done with the greatest ease, and I was surprised to find how readily it passed in. The animal remained perfectly quiet. I found that the elastic tissue of the lung, as antagonising the opening tendency of the cage of the thorax, supported from four to five inches of water. Here we have one of our factors distinct, the amount of the partial vacuum which is formed between the two layers of the healthy pleura.[1]

What has led me to think seriously about this subject is a case which happened only a few months ago, and which has caused me much regret. At my old school, the Charterhouse, I was asked to look at one of the boys whom they were afraid was dying. I saw the patient, a fine, healthy, hearty boy, fourteen or fifteen years of age, lying on his right side in bed. The lips were livid; the face blue. He was breathing very rapidly, and complained on being moved out of his posture. On examining him I found his right side distended with fluid. The intercostal spaces seemed to bulge, and the apex of the heart was beating in the left axilla. It was a case which ought to be instantly tapped; and, after a little delay, the same afternoon a trocar was brought, and the boy was tapped. Nothing came out but a about a teaspoonful of clear serum, and an air-bubble or two went in with deep inspiration. The poor boy died on the following night. I was sure there was a gallon of fluid there, the right pleura being competent to contain that quantity. The half an ounce of fluid showed that the trocar was in the cavity of the pleura. We, moreover, passed a probe through the trocar it whole length without touching the lung. We were evidently in a collection of fluid, but that fluid, although apparently so tense, had no tendency to come out. Had I had with me then the means of producing suction, the boy's life would probably have been saved.

Another case has since occurred to me in the hospital. It was that of a healthy-looking girl, about twenty. She had rheumatism two and a half years before, which lasted six weeks, leaving some short breath and palpitation. A second attack had occurred two months before admission, and on the 22nd of August she complained of pain in the right shoulder. The tongue was furred; the appetite bad; the pulse 100, and irregular; respiration 30. She complained of cough, difficulty of breathing, and pain in the back on the left side. The urine had a specific gravity of 1020, with a trace of albumen. There was a loud systolic murmur at the apex of the heart, and a double murmur over the sternum. The impulse of the heart was one inch to the left of the middle line, and two inches below the nipple. Evidently there was heart disease, but there was also secondary pleurisy. On the left side there was dulness over the lower three fourths of the lung, with absence of vocal fremitus, and marked ægophony. On the 23rd the respirations were 30 a minute, and the pulse 100; the temperature 96° in the morning, and 100·2° in the evening. On the 24th the respiration was 28 and the pulse 100. The circumference of chest on the 25th was thirty-one and a half inches, the left side measuring half an inch more than the right—sixteen inches against fifteen and a half. By the 29th dulness had extended over all the lung. It extended also one inch to the right of the median line, and the heart was displaced downwards; its impulse was very strong in the epigastrium, and the repiration was 30 in the minute against a pulse of 96. On the 31st I performed paracentesis, and drew away three pints seven ounces of yellow serous fluid. This, when cold, had a specific gravity of 1020. Before drawing off the fluid I took the pressure, and, although there were nearly four pints of fluid in the pleura, there was no external tension, no inclination for the fluid to come out; indeed, every time she took an inspiration there was a negative pressure sufficient to support two inches of water. The suctional effect which was found in the sheep is four or five inches. Even with this large amount of effusion in the pleura it remained able to support two inches of water. We removed nearly four pints of fluid by attaching a long tube to the trocar, so as to form a descending column, the tube being about three feet long, and this height as she sat up in the bed, of course, more than counterbalanced the four or five inches which we found in the sheep's pleura. We had antagonised the negative tension, and the fluid escaped. Immediately after tapping, the upper third of the left side became resonant, but the heart continued to beat strongly in the epigastrium and the anterior dulness still extended to the lower border of the second rib. If you consider what suctional force we were using, you see the column of serum, which was ·02 heavier than water, would make a water barometer about 30 feet high instead of the usual 33 feet, so that we had a pressure of about ·1 of an atmosphere, or 1½ lbs. on a square inch. The tube at the end of the trocar worked extremely well, very much better than the usual aspirator. The aspirator often breaks down just as you want to trust it. Even if it does act, it exercises such violent and vigorous suction that it is apt to collect false membrane round the end of the trocar and block it up; whereas the gentle suctional effect of a tube reaching to the floor will gradually extract all the fluid without giving any annoyance; moreover, it prevents the entry of air. It is far better not to open the cavity of the pleura to the air, and by using this long tube, there must be a very long regurgitation before the air can get in. The apparatus I intend to use in the future is a length of india-rubber tube added to the ordinary trocar, and then, by simply raising the patient, any column can be obtained.

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[1] I find it has been estimated by Donders at six millimetres of mercury.

This view was illustrated by an experiment on the elastic power of the lung acting through fluid, as in the case of pleurisy with effusion. A small exhausting syringe conducted to an inverted receiver filled with water, within which was fastened a lung. The internal part of the lung was connected with the external air, so that, by lessening the pressure upon the water, suctional effect was caused to take place like that which exists normally in the lungs; the lungs consequently expanded. Beyond was a mercury gauge, for the pressure of elasticity in the sheep's lung was so powerful that a water gauge was not strong enough. Every inch of this mercury may be taken as nearly equivalent to one foot of water, and as the lung expands, two inches of pressure could be obtained in the mercury, which is equivalent to two, or rather more than two feet of water.

Another case occurred in the hospital, where I was unable, even by very considerable suction with my mouth, to obtain more than a few drachms of fluid from the chest of a child, æt. ten months, who had effusion in the pleura. Here, however, I cannot help thinking that there was some instrumental error. It is possible that the trocar, which in passing accidentally touched upon the edge of one of the ribs, may have cut off a little piece, and thus have been plugged up. We did extract two or three drachms of fluid, using suction by the mouth, but with considerable difficulty. It would seem, however, that even where the effusion in the pleura is very considerable, the elastic contraction of the lung is sufficient to prevent any outward tendency of the fluid, so that you must use considerable suctional power. This fact has many other bearings which need not now be entered on. All abscesses, the cavity of which is rigidly kept open, must be differently treated from those which have the power of collapsing. There is no opportunity for contraction of the walls, and if pus be there some means of exhaustion must be provided before you attempt to evacuate the cavity. A similar tension keeps fistulæ of the anus so long open in many cases; the walls of the sinus are unable to contract and allow the cavity of the abscess to fill up. A fistula may be defined as a sinus which is constantly kept open by the tension of its muscular walls, pulling in a direction antagonistic to its natural tendency to contract. Similarly in purulent effusions affecting the pleura, you cannot expect healing so rapidly as you would with an external wall which could contract freely after the evacuation of the contents.

The bulging of the intercostal spaces can be accounted for as simply due to removal of part of their ordinary tension. We are accustomed to see them under a negative pressure of four or five inches, a pressure which is shown to be partially removed when effusion is present. This explanation is corroborated by the presence of the same phenomenon in pneumothorax.

The publication of the above remarks in the form of a clinical lecture having attracted the attention of our able Consulting Surgeon Mr. Le Gros Clark, he was kind enough to forward to me a communication of his to the Royal Society in 1872, which bears so distinctly on the subject that I feel that a reproduction of a part of it will assist materially in completing the solution of the problem.

1. In performing some experiments on recently slaughtered animals, says Mr. Clark, for the elucidation of a subject which I was then engaged in investigating, I was struck with the remarkable arched tension of the diaphragm, a condition which continued unabated until air was admitted into the pleural spaces, and then it became flaccid and descended. This altered condition was attended by collapse of the lungs, which receded

from the thoracic walls, and occupied a much smaller space than previously.

2. In order to measure the quantity of air expelled from the lungs in the preceding experiment, and to ascertain how far the collapse of the lungs and the altered condition of the diaphragm were dependent on each other, the following experiment was performed. The trachea of a sheep, immediately after death, was exposed in the neck, divided, and tied over a glass tube, which was put in communication with a graduated receiver placed under water, and guarded by a stopcock. The pleuræ were then opened, and as air entered the diaphragm became flaccid; but the lungs remained unchanged in position and form The stopcock was then opened, and a rush of air, displacing the water in the receiver, was accompanied by collapse of the lungs. The quantity of air thus forcibly expelled was from ten to twelve cubic inches.

3. The interpretation of this experiment is—

(*a*) That the passive tension of the diaphragm is due to the atmospheric pressure on its abdominal surface, which is not counterbalanced by a corresponding pressure on the opposite or thoracic surface, until air is admitted into the pleuræ.

(*b*) That the lungs retain their supplemental air by virtue of this tense condition of the diaphragm, the elasticity of the former being resisted by the tension of the latter.

(*c*) That the contractility of the lungs, tending to the expulsion of the supplemental air, removes the atmospheric pressure from the upper surface of the diaphragm, and thus produces and maintains its arched form and tense condition.

(*d*) That as soon as the pressure on the inner and outer surfaces of the lungs was equalised, by the admission of air into the pleuræ, their contractility forced out the supplemental air; and the quantity thus expelled may be accepted as an approximate measure of the elasticity of these organs.

(*e*) That the diaphragm was rendered flaccid by the admission of air into the pleuræ, independently of the collapse of the lungs.

4. Thus there exists a constant antagonism between the atmospheric pressure on the interior of the lungs and their elastic and contractile properties, tending to the expulsion of the air they contain; and this expulsive power is limited by the

resisting tension of the diaphragm. These several conditions are in no degree influenced by the direct admission of air into the abdominal cavity; for the trachea being treated as in the former experiment before the abdomen was opened, and an aperture being then made into the peritoneum, the abdominal walls rose as air rushed in, but no air was expelled from the lungs. The expansion of the abdomen under these circumstances is especially remarkable in oxen when turned on their back, and is probably in great measure due to the position favouring the expansion of the lower costal region.

5. In the recognition of the above facts, I think that the extremely tense condition of the diaphragm has not received the notice which its practical importance deserves. Independently of being the agency by which the supplemental air is retained in the lungs, the resistance thus offered limits the encroachment of the abdominal viscera on the thoracic cavity; and by this same property, combined with the broad and inseparable attachment of the central tendinous expansion to the fibrous pericardium, the heart is preserved from being impeded in its movements in the various stages of respiration.

That the tension in question fulfils these functions is exemplified pathologically as well as physiologically. It would indeed be impossible, without giving due weight to this property of the diaphragm, to account for the trifling interference, comparatively speaking, that pregnancy, or the presence of large ovarian tumours or ascitic accumulations, exercises over the mechanism of respiration; and it would appear still more surprising that the sudden removal of such distension, and with it the pressure on the diaphragm, is not attended by more serious consequences. Yet the respiratory mechanism is scarcely influenced appreciably even by the sudden collapse of an enormous ovarian cyst; and this is accounted for by the passive tension of the diaphragm, which alike resists encroachment from below and refuses the solicitation to descend which the removal of the pressure would seem to offer.

6. In the action of the diaphragm this tension is an essential condition, in order that there may be no waste of power, but that its earliest contraction may be accompanied, at once and simultaneously, by the entrance of the tidal air into the lungs; and it would seem probable that, for ordinary expiration, the

suspension of its contraction and consequent return to its normal state of arched tension is alone sufficient.

7. But further considerations present themselves in reviewing this property, in association with the attachments of the diaphragm, and the relations of other muscles credited severally with functions in both inspiration and expiration.

8. The thoracic parietes, both osseous and cartilaginous, are movable, admitting of an increase or diminution in the circumference of the chest; and the diaphragm is attached, by its circumference, to the chest-walls. As the force by which the tensely arched diaphragm is rendered plane is necessarily considerable, it may be asked, does the contraction of this muscle under any circumstances draw in the ribs? and why does it not do so always? I believe the answer to the first inquiry to be, that it does, under some circumstances, draw in the ribs; and the explanation of the second must be sought in a consideration of the agency of other muscles engaged in inspiration, to which attention will be presently directed.

9. The property of the diaphragm under consideration—its passive tension—is engaged in restoring the equilibrium of rest after a deep expiration. The supplemental air is expelled from the lungs chiefly by the action of the abdominal muscles, the circumference of the chest undergoing no appreciable change except at the lower part, where it is directly acted on by these muscles. When they are relaxed, and the lower costal region again expands, the diaphragm asserts its passive influence, by drawing in so much air as the counter-resistance of the contractility of the lung-tissue will permit.

10. But this agency is somewhat more complex than would appear from the above statement. The passive tension of the diaphragm is such that it would probably be sufficient to resist the efforts of the abdominal muscles to force it upwards, without the co-operation of another cause, which is the altered condition of the chest-walls. The lower ribs are perceptibly drawn inwards, as stated, when the supplemental air is expelled from the lungs; and, as a necessary consequence, the horizontal portion of the diaphragm is relaxed, and thus placed in a condition which permits of its being forced upwards, so as to compress the lungs.

11. But the deepest inspiration is also attended by hollow-

ing or drawing in of the epigastrium; and the increasing circumference of the lowest costal region, which is limited as compared with the upper, is almost arrested before the act of forced inspiration has attained its maximum; and the rise in the abdomen is likewise suspended before this climax is reached. These conditions are due, I apprehend, to the combined effect of atmospheric pressure on the relaxed abdominal walls, concurrently with the extreme contraction of the diaphragm, overcoming the resistance of the intercostal muscles, and drawing in the lower ribs.

12. As exemplifying, in a remarkable and interesting way, the foregoing observations, I may mention the case of a patient recently an inmate of St. Thomas's Hospital, in whom there was fracture, with displacement of the sixth cervical vertebra, by which the cord was compressed. He survived the injury less than three days, and there was complete paralysis of motion and loss of sensation below a line level with the nipples; the movement of the arms was also impaired. "The walls of the chest, across and below the nipples, were retracted at each inspiration." I quote the words of the Hospital Registrar; but I repeatedly proved this, and demonstrated the fact to others, by placing around the chest, just over the nipples, a tape, which became relaxed at each inspiration, to the extent of at least half an inch. The inspirations were short and sudden, the expirations prolonged, and latterly intermittent. This is not the only instance in which I have observed this phenomenon under similar conditions.

The following case has more recently come under my observation, and I give it according to the report of Mr. Anderson, the Surgical Registrar of the hospital:—"F. F—, æt. 58, a bricklayer, was admitted into St. Thomas's Hospital in February, 1871, having fallen from a considerable height, and struck some projecting object in his descent; he remained incapable of movement, though perfectly sensible. The lower limbs were paralysed, and the movements of the upper extremities were impaired; and he complained of great pain shooting from the neck into the upper extremities. In breathing the whole chest was very perceptibly drawn in during inspiration, and the abdomen became more prominent than is normal. The chest was slightly raised as a whole, and the sterno-mastoids were seen to act strongly. The lower ribs were not drawn downwards, but appeared to be pulled directly inwards, or inwards and slightly upwards. In expiration the chest-walls appeared to relax, as if from the cessation of some contracting influence. The respiration, as a whole, was jerking, but not increased in frequency. Subsequently the chest appeared to act unilaterally, as if from unequal action of the two sides of the diaphragm, the ribs on the left side being drawn inwards during inspiration, whilst the right half of the thorax was thrust outwards passively. He survived the accident about sixty hours; and the cord was found crushed between the fifth and sixth cervical vertebræ, which were fractured."

This peculiarity in the diaphragmatic breathing must be due, in the main, if not entirely, to the suspension of the intercostal action, whereby the ribs are left at liberty to be acted upon, and thus drawn in by the contraction of the diaphragm.

13. I would remark, as bearing upon the foregoing observations and those I am about to make, that in the unfettered adult body, in the erect or sitting posture, the sphere of respiratory movements, as seen and measured, is chiefly limited to the region which is bounded above by a horizontal line extending outwards from the lower extremity to the sternum, and below by a similar line extending from the umbilicus to the anterior spine of either ilium. In the recumbent posture, when the abdominal muscles are relaxed, the movement extends lower over the abdomen. Yet the measurements are by no means commensurate with the apparent movements. The deeply notched form of the chest below, with its movable elastic boundary of cartilage, is well adapted to admit of these necessary movements of alternate expansion and contraction.

From a series of further experiments Mr. Clark draws the following conclusions:

1. The normal state of the diaphragm, when at rest, is that of arched tension; and this condition is due to the elasticity of the lungs resisting the atmospheric pressure on its thoracic surface.

2. This tension is such that the diaphragm cannot be forced upwards whilst the ribs are fixed; and is exerted in drawing the ribs inwards when the intercostal muscles are relaxed.

3. The results due to this passive tension are that (*a*) it retains the supplemental air in the lungs; (*b*) it limits the encroachment of the abdominal viscera on the thoracic cavity; (*c*) by virtue of the attachment of the pericardium to the cordiform tendon, the uniform calibre of this bag is secured, and the heart is thus protected from being impeded in its movements during respiration, the crura taking part in maintaining this condition when the muscle contracts; (*d*) it economises active power in inspiration.

4. *Inspiration.*—When the upper ribs are fixed by the scaleni, both sets of intercostal muscles act in increasing the transverse diameter of the chest, by raising the curve of the ribs and the sternum.

They rotate the ribs outwards.

They fix the thoracic walls, and thus antagonise the tendency of the diaphragm to draw inwards the ribs to which it is attached. A fixed circumference is thereby secured, from which the diaphragm acts in altering its own form; and this is one of the most important functions of the intercostal muscles.

They assist in expiration when the lowest ribs are fixed by the abdominal muscles.

5. The scalenus anticus and posticus (especially the former) are auxiliaries in inspiration by raising and fixing the first and second ribs, and thus rendering them relatively immovable.

Thus, when the scaleni act, the intercostal muscles raise the ribs; when the scaleni are at rest, and the abdominal muscles act, the intercostals depress the ribs; if neither the scaleni nor abdominal muscles were to act, the ribs would be approximated at their centre by the action of the intercostal muscles.

6. The pectoralis minor (when the coracoid process is fixed), the lower costal portion of the pectoralis major, and some other muscles of minor importance, might assist in elevating the ribs; but it is questionable whether they ever do so in such way as to assist in inspiration.

7. The serratus magnus has no action in inspiration; all but its lowest digitation must draw the ribs downwards, if they act on them at all.

8. The action which the sterno-mastoid is capable of exerting in inspiration is by fixing the first rib through the medium of the clavicle, and by raising the sternum. This is not

required in health, but may be witnessed occasionally in disease.

9. *Expiration.*—Ordinary expiration is accomplished by the elastic resiliency of the lungs, the tense diaphragm resuming its arched form when the muscle ceases to contract; the elasticity of the ribs and abdominal parietes may assist to a limited extent; after a deep inspiration this elasticity has a more important share in expiration. The abdominal muscles, which conjointly with the levator ani, are the agents of forced expiration, do not act by urging the abdominal viscera against the *tense* diaphragm, which would resist the pressure, to the injury of these viscera, but against the *relaxed* diaphragm—relaxed, that is, by the abdominal muscles drawing down the lower ribs, and thus contracting the circumference of the lower part of the chest.

The intercostal muscles also contribute importantly to this result, as the effect of their contraction is reversed, by the lower ribs being relatively fixed during the action of the abdominal muscles. In this way both the long diameter and circumference of the chest are abridged.

10. The upper and lower costal movements in both sexes, when entirely unfettered, are equal, in ordinary inspiration and in the uncontracted chest.

The costal movements, both upper and lower, are much greater in forced inspiration in the male than in the female.

In both, the lower costal movements are much abridged by compression of the abdomen and lower part of the chest, while the upper costal movements are exaggerated.

The observed fact that women breathe more by the chest than by the abdomen is due to artificial compression, and to the altered form of the chest consequent on its early adoption.

The clinical lecture, of which the substance is given above, was delivered in October, 1877; and in the first half of the present year I have received a most interesting monograph named PNEUMONO-DYNAMICS from Dr. G. M. Garland, assistant in physiology in the medical department of Harvard University, in which a very complete and valuable series of experiments is detailed as to the physical conditions of the healthy pleurae, both in animals and in the human subject. The preface is dated in December, 1877, and the book itself in 1878.

He commences by figuring the curved line of "*flatness*," as he terms the absence of resonance, over a pleuritic effusion. It forms, according to him and Damoiseau, "a parabola," which is highest in the axillary region, and which spreads out towards sternum and vertebral column, a small effusion being detected in the axillary line before it is perceptible anywhere else. To explain this curve he details some ingenious experiments in which fluid was injected into the pleural cavity of dogs, which by subsequent solidification should form a permanent cast of that cavity. He suspended the dogs perpendicularly by the head, and introduced a pear-shaped canula into the pleural cavity, plunging it through the ninth or the tenth intercostal space in the axillary line. He employed glue and plaster of Paris for the injections, and exercised great care to prevent the entrance of air with the fluid. Having allowed sufficient time for the solidification of the injection, the points of transition from resonance to "flatness" were carefully marked out. Cocoa butter was afterwards employed as a more suitable material, since it solidifies more slowly than the former composition. He subsequently devised a more general apparatus for testing the behaviour of elastic bodies in enclosed spaces, and showed the close analogy existing between a dog's lungs and these. Applying the principles thus obtained to the human lung, he indicates that the human lung is extremely elastic, that it is always stretched beyond the zero point of its elasticity, and that consequently there is a constant struggle between that and other opposing forces. If a pleuritic effusion be added, so long as it is suspended by the elasticity of the lung, it certainly cannot compress it. On the contrary, it must exert a *negative pressure* or *traction*. According to Rokitansky, a normal lung is capable of contracting to one eighth of its usual volume, so that compression does not begin until the effusion occupies at least seven eighths of the thoracic cavity. He claims "to have overthrown the hypothesis, hitherto *universally* accepted, that the lung is compressed and driven away from the chest-wall by an encroaching exudation," and to have "substituted for that hypothesis the assertion that a fluid exudation exercises a negative pressure upon the lung by virtue of its weight." It will be seen, however, that my experiments made early in 1877, and actually described in the autumn of that year, justify some slight modification as to the previous universality of the erroneous hypothesis.

He further points out that an effusion can never compress a lung upward (1) until the retractility of that organ is exhausted, either by contraction or by disease, and (2) until the effusion has a fixed point of support below, from which to operate. Compression of the lung is therefore impossible so long as the diaphragm is elevated into the thorax, unless that membrane is held up by adhesions, or by intra-abdominal pressure from tumours, gas, &c. It will be seen that this upward tension of the diaphragm had been already well appreciated by Mr. Le Gros Clark.

Space will not permit me to give fuller details of this valuable book. It will perhaps have been sufficient to point out how singularly confirmatory of each other are the observations independently made, and individually worked out, by Mr. Clark, Dr. Garland, and myself. Personally I have to thank those gentlemen for their extreme kindness and courtesy in giving me the opportunity of corroborating or correcting any views I may have arrived at, by the perusal of two memoirs alike marked by scientific method and by great practical importance.

Postscript.—A case has occurred in my wards at St. Thomas's Hospital, since the above was in print, which to some extent explains the very varying amounts of pleuritic tension observed.

A middle-aged man, otherwise robust, was admitted with effusion in the left pleura of rapid occurrence. Within two days the side was full, the intercostal spaces were bulged out, the heart dislocated, and the mediastina pushed an inch and a half to the right. Although dyspnœa was not urgent I tapped him at once. From three to four pints of hæmorrhagic fluid, apparently about half blood and half serum, were evacuated. The blood was evidently old, not arterial, and furnished only half the usual coagulum. On the advice of a colleague, who suspected malignant disease, I suspended the flow of fluid at the quantity above named. The tension was positive, and supported twelve inches of water, being the highest I had hitherto found in the pleura. The lung re-expanded instantly and painlessly, a fact kindly substantiated for me by Dr. Harley. The patient remained in fair health for over two months, no signs of malignancy whatever developing themselves. At the end of this period I determined to tap again. This time, however, there was no positive tension, and a deep inspiration produced negative effects to the extent of two inches of water. The lung refused to expand, and the fluid ceased flowing after from two to three pints had been evacuated, even with the additional suction of three feet of tubing. The patient, who was an excellent workman, wished to resume work, and went out considering himself well.

June 5th.—I have had another opportunity of examining this patient. The fluid has once more accumulated, and the left side is as distended as it was at first. He proposes to re-enter the hospital at once.

NOTES

ON THE

EXAMINATIONS OF THE BODIES OF FIFTY CHILDREN

BORN DEAD OR SHORTLY DYING.

By ROBERT CORY, M.B. Cantab.,
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I was first led to the examination of stillborn children, for which the large maternity department of this hospital offers abundant material, for the purpose of illustrating some lectures on forensic medicine. It was not until later that notes were taken of the pathological conditions met with. A great deal therefore of what follows is only corroborative or otherwise of observations already made for medico-legal purposes, but I trust they may not on this account be wholly without interest or use.

I shall begin by describing some of the pathological conditions that were found, and then proceed with the medico-legal inquiries.

Among the 50 cases that were examined there were 21 in which the bodies presented undoubted evidence of death having taken place some days before birth. As certain evidence of this it may be here stated, that in all the 21 the cuticle had begun to separate. This proportion of intra-uterine deaths may be taken as an approximation to the proportion of the children so born in the maternity department of the hospital, for there was no selection made of the bodies examined. In 3 of these intrauterine deaths a peculiar condition of the liver was noticed and this condition, which I shall presently describe, was associated in 2, if not in all 3 cases, with peritonitis, which had glued the coils of the intestines together.

In the first case in which this condition was observed I neglected to make a written note, the examination being made, as before explained, for other than pathological purposes, consequently the history of this case is lost. When the next case of the kind presented itself, I had already become convinced that the appearance depended on a pathological and not on a post-mortem change, and that the probable cause of it was syphilis. This conviction was brought about by the examination of a child which died at five weeks old with a characteristic rash, and with cracked corners to its mouth. The history of this child is interesting in more points than one, so that I will here briefly give it.

The child, S. J—, a male, was stated to have been born quite healthy on the 20th December, 1876. On the 20th of June, 1877, I first saw it, and it had then an eruption fully developed, and the angles of the mouth were cracked. The eruption first appeared when the child was two weeks old.

The mother had been twice married; to her first husband on the 14th April, 1873, by whom she had one child, a girl, which does not appear to have suffered from syphilis, and died at sixteen months old of convulsions. By her present husband she has had four children.

The first, a girl, had an eruption, and died nine weeks old.

The second, a girl, had an eruption, and died six weeks old.

The third, S. J—, a boy, born on the 20th December, 1876 (the subject of the present history), died 23rd January, 1877.

The fourth, a girl, born on the 24th December, 1877, brought to me immediately the eruption appeared, and is now recovering.

The mother has suckled all her children, and has had no sore upon her nipples.

The points of interest in this case are—

1st. The severity of the disease in the children, destroying three within a very short period of birth, with the almost total absence of symptoms in the mother.

2ndly. The early appearance of the eruption in S. J—.

3rdly. The fact that *all* the children were born healthy, at full time, and that there were no miscarriages, notwithstanding the severity of the disease, as afterwards manifest. But the point of special interest for our present purposes will be found in the pathological condition met with in the liver of S. J—, a description of which follows.

The body was examined within twenty-four hours of death, the external temperature never exceeding 45° F. during this time.

The liver was large, and weighed 367 grms. When cut into the surface of the section presented a light yellow appearance, mottled here and there irregularly with that of normal colour. Towards the surface, for an average depth of two or three lines, the liver substance was not yellow.

There seemed much increase in the connective tissue surrounding the portal vessels, but the hepatic veins were normal. On looking at the uncut surface in places, *e.g.* at the upper and under surfaces of the left lobe and upper border of right lobe, it was seen to be scattered over with very small white spots, and in making a section through these parts these scattered white specks were seen to extend for the distance of one inch into the substance of the liver.

In a section made immediately between the two greater lobes above the portal fissure, the liver substance was much altered from its normal appearance, and the little white spots were numerous here. The Spigelian lobe was yellow throughout. The base of the gall bladder was adherent to the lower edge of the right lobe, and at this point there was retraction of the liver, leaving a dent on the anterior surface not unlike the retractions left in the sites of syphilitic growths in adult livers. The microscopical examination of this liver showed the spots to consist of an amorphous central portion, surrounded by cells of smaller size than those proper to the liver and more closely crowded, which gradually were replaced, as the circumference widened, by those of normal character.

The spots varied a little in size, but on an average were about $\frac{1}{100}$th of an inch in diameter. They were almost always in relation with the connective tissue surrounding the portal veins and accompanying vessels. About sixty-four spots could be counted in a superficial area of a square inch.

The weights of the other organs were as follows:—Right lung, 54 grms.; left lung, 45 grms.; heart, 36 grms.; right kidney, 30 grms.; left kidney, 30 grms.; spleen, 57 grms. The spleen seemed healthy though large. The kidneys were lobulated, and presented a pale mottled appearance. The capsule stripped off easily, leaving a smooth surface. Iodine gave no evidence of amyloid changes. The rest of the organs appeared healthy. Now, it was from the spotted condition of some portions of this liver, closely resembling in appearance the spotted condition of the fœtal liver I had previously seen, which suggested a common cause. Accordingly, when the next case presented itself, inquiry with regard to syphilis was made, and it was ascertained that the mother had had the disease before marriage, and that all her three children had been prematurely stillborn.

In the third and last case in which a similar condition of the liver was met with the history of syphilis was on the father's side. He had had a chancre, followed by secondary symptoms, just before his marriage, and, indeed, was not quite well at the time, for he tried to postpone it in consequence. The first child of this marriage is said not to have suffered, and is now in good health. Since then the mother has had three other children, all premature and stillborn. The last of these children furnished the liver which formed the third of the kind met with.

The external appearances presented by all these three livers were nearly exactly the same. The description of one will serve for all.

The whole of the gland was studded over with lightish grey coloured spots. These spots were not only seen on the surface, but could be felt when the finger was passed over them, and they were found to extend throughout the gland. The liver was of a light brick-red colour, the usual colour, in fact, of the livers of children which have been dead for any length of time before birth. In two of these cases the coils of intestines were lightly glued together by a thin layer of fibrin; this condition may have existed also in the third, but it was not noted. At first, when I met with this condition, I always regarded it as due to peritonitis, but I am now inclined to think that it is sometimes due to a post-mortem coagulation of the fluid contents of the abdominal cavity, for it is frequently met with in stillborn children whose death has taken place some time before birth.

The spots were very numerous, 600 or so existing on a superficial area of a square inch, and they were on an average about $\frac{1}{100}$ of an inch in diameter. The microscope showed that they were probably little gummatous growths; it was difficult, however, to be certain owing to the post-mortem changes which had taken place in the liver. Those on the surface were connected with the investing capsule of the liver, raising this above the general level. They also seemed to occupy the positions of the lymph channels. Those in the substance of the liver were in connection with the connective tissue surrounding the portal and accompanying vessels. Their centres consisted of amorphous matter surrounded by an indistinct fibrillated tissue, which gradually passed into cells, and these, again, as the circumference widened, were gradually replaced by those of normal character.[1]

No pathological conditions were noticed in the other organs. The weights of these will be found on reference to Table II, which will be found at the end of this paper, No. 34 being the case to which the above description refers, and No. 15 being the other case in which a similar condition of liver existed.

Since writing the above I have examined another case in which a precisely similar condition of liver existed, and the history of syphilis was also as clear. In this case the child was born living, but died almost directly after birth. The abdominal cavity was distended with ascitic fluid, but there was no inflammatory condition of the peritoneum. The mesentery was engorged with blood, and the spleen of a most unusual size. The ascites, the engorgement of the mesentery, and the large spleen, all point to portal obstruction, thus throwing much light upon the other cases. I have not yet been able to make a microscopical examination of the liver, for it was injected, and is now hardening. As in all the other cases the liver alone among the organs showed any morbid appearances.

The next case which will be considered, No. 8 in the table, is one in which peritonitis had evidently existed for some time prior to death, for the coils of intestines were not only found glued together, but were also adherent to the anterior abdominal wall in the right iliac region, and at this place the adhesions had apparently undergone calcareous degeneration, for a mass of calcareous concretion was here found. Another patch, not so large, existed on the suspensory ligament of the liver. The tendency in the fœtus of inflammatory deposits to undergo calcareous change has been noticed also, I believe, by Dr. Barlow. In the present case the fact of calcareous changes having taken place proves that the peritonitis must have existed in the fœtus for some time prior to its death, and suggests the possibility of recovery taking place after an intra-uterine peritonitis. In this, if it ever takes place, some of the reported cases of congenital absence of the peritoneum may find their explanation.

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[1] In the above microscopical examination I was kindly assisted by Mr. C. Stewart.

In another fœtus, No. 40 in the table, a tumour the size of a pigeon's egg was found situated beneath the peritoneum between the kidneys. It was probably in connection with the periosteum covering the vertebra, and its microscopical appearances resembled those of spindle-celled sarcoma, approaching more nearly fully developed connective tissue. The fibrillæ interlaced in every direction. The tumour was encapsuled and fixed to the vertebræ.

Table II contains the weight of the different organs of nearly all the children examined, with a few other particulars. The lengths are given in inches, and the weights in grammes. To convert the grammes into grains all that is necessary, of course, is to multiply the number of grammes by 15·4, or more accurately by 15·432.

Whenever the cause of death is not mentioned it may be supposed to have taken place from the accidents of birth.

The first medico-legal question which will be considered is, the value which may be attached to the increase in weight of the lungs after respiration, as a sign of live birth. That this increase does occur there can be little doubt, but the difficulty is to show whether this has occurred or not in individual cases. As in every case we can only know the weight of the lungs either before or after respiration, as the case may be, we are obliged to resort to indirect means to obtain the other weight requisite for the comparison. Various means have been suggested for doing this—1st, there is the so-called static test, which consists merely in weighing the lungs and comparing this weight with a recognised standard, but the variations in the size and weight of the lungs in different fœtuses makes this test of no value. Dr. Taylor gives the average weight before respiration as 649 grains or 42·05 grms., but it will be seen by looking at Table No. II that there are no less than two cases which greatly exceed this weight, viz. Cases 37 and 50.

Then, again, there is Ploucquet's test, which consists in comparing the weight of the lungs with the weight of the body. This test is given in most text-books. Ploucquet arrived at the conclusion from a very limited number of observations, that the average ratio of the weight of the lungs to the body in children which had not respired was as 1 to 70, and in those which had respired as 1 to 35. A reference to Table No. III will show how untenable such a conclusion is, for the average ratio of the cases that have not breathed is only as 1 to 58, while in those which had fully breathed it is as high as 1 to 49. Moreover, it will be seen that the average ratio of the lungs to the body in those which have fully respired actually exceeds the ratio in those in which imperfect respiration has taken place, which is a fact directly contrary to what ought to have been the case according to Ploucquet's law.

Bernt, of Vienna, suggested a much more reliable method, viz. of comparing the weight of the lungs to that of the liver, and it will be seen that the average ratios given in the table bears this out as a general proportion. The liver, however, is a large organ, and its weight depends upon the quantity of blood contained in it, which varies greatly.

Bernt chose the liver for comparison because he considered the blood which went to this organ before was diverted to the lungs after respiration. This, however, is not to be relied upon, especially when death results from suffocation, and it seems much better to select some other organ less liable to venous congestion. The kidneys are the organs which are less liable to venous engorgement; their combined weight, therefore, would appear to be the best for comparing the weight of the lungs to and this is fully borne out by the cases contained in the table.

The value to be attached to the increase of the weight of the lungs due to the increased quantity of blood contained in them, as determined by the above means, must at best be unsatisfactory. Nevertheless, as corroborative evidence it has its value.

In cases where the defence may be that the lungs owe their buoyancy to artificial inflation, this condition if it could be satisfactorily determined, would strongly disprove such a supposition. The best means at our disposal for doing this ought not, therefore, to be neglected even though unsatisfactory, and the comparison of the lungs to the liver, or as, I believe, better still to the kidneys, seems to be the most reliable means for determining this we have.

The only selection made in forming this table has been that all fœtuses under 900 grms. have been rejected, and also all the intra-uterine deaths. No other exceptions have been made. All other cases in which the conditions of respiration were ascertained being included.

Position of the umbilicus.

The table No. I is drawn up to show the distance of the umbilicus *below* the middle point of the body. In all the cases examined this was never once found *above* it.

The thick line in the table represents the middle transverse line of the body, and the distance at which the umbilicus was situated below is marked in each case by the line which proceeds from it at right angles. The average distance in the 46 cases is $\frac{13}{16}$ of an inch, and it will be observed that this distance remains almost constant, and is quite independent of the absolute length of the fœtus.

Chaussier thought that in a mature child in the ninth month the attachment of the cord exactly corresponded to the centre of the length of the body; this is obviously shown not to be the case, but that the cord retains its constant average position below the middle line, viz. $\frac{13}{16}$ of an inch in fœtuses six inches long, as it does in fœtuses twenty-two inches long.

Another point may be mentioned here, and it is that the length of the extended arms in fœtuses nearly always falls short of the length of the body by half an inch. There were only 6 cases among the 50 in which it was exceeded, and 2 in which both lengths were equal. This is the reverse of the proportion which holds in adult life.

Fractures of the skull.

Another medico-legal question to which attention was directed during the examination of the above cases was, What probability is there of fracture of the skull occurring, supposing the child was suddenly born, and dropped head first to the floor? Chaussier performed some experiments to elucidate this, and he found that of 15 stillborn children dropped eighteen inches on a paved floor, fracture of the parietal bones occurred in 12. I repeated these experiments, and out of 9 children so dropped, 8 of them had their parietal bones fractured.

The table gives the number and weight of the fœtuses experimented upon. The number referring to the general table.

No.	Weight.		No.	Weight.	
17	1090.	Fracture.	37	2520.	No fracture.
23	1319.	Ditto.	38	1875.	Fracture.
30	1790.	Ditto.	46	2870.	Ditto.
35	2022.	Ditto.	48	3450.	Ditto.
36	1970.	Ditto.			

The fractures which occurred could all be referred to two types. The first is represented in Fig. 1, where the fractures extend from the suture towards the parietal eminence along the lines of ossification. This happened in Nos. 17, 30, 38. Fig. 1, *a, a,* represents the position of the fractures in 17 and 30, and *b, b,* represents their position in 38. The second is represented in Fig. 2. In this class the fractures proceed from the parietal eminence towards the suture, and they were of angular form, that is to say, they proceeded in two directions along the lines of ossification having the parietal eminence as a centre of radiation.

Fig. 1.

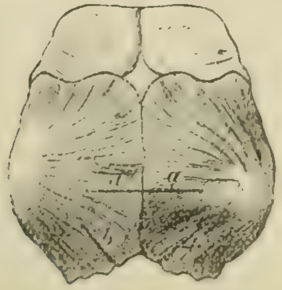
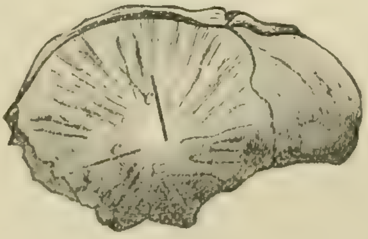


Fig. 2.



This form of fracture occurred in Nos. 23, 35, 36, 46, and

48. In Nos. 23 and 48 it was the right, and in Nos. 35, 36 and 46 it was the left parietal bone which was fractured. In all these cases rapid effusion of dark liquid blood took place between the bone and pericranium at the line of fracture.

Before bringing the present paper to a conclusion I might perhaps call attention to a physiological relation which has been found pretty constantly to exist, and that is a relation between the size of the thymus and the state of the development of the osseous centres. When the thymus is small the centres of ossification are generally backward in development; the opposite condition of the gland is generally, but not so constantly associated with an advanced development.

The limited number of cases does not justify more than this passing notice.

TABLE I.

Showing distance of umbilicus from centre of body.

No.	Sex.	Length of body.	Distance of umbilicus below centre of body.				
1	M	$5\frac{10}{16}$	······	······	······	······	
2	M	8	———	———	———	—	
3	F	$8\frac{12}{16}$	———	———	———		
4	F	$9\frac{12}{16}$	———	———	———	—	
5	F	$12\frac{10}{16}$	······	·····			
6	F	$12\frac{13}{16}$	······	······	······	······	··
7	M	$12\frac{14}{16}$	······	······	······		
8	F	13	———	———	———	———	
9	F	13	———	———			
10	F	$13\frac{8}{16}$	———	———	———	—	
12	F	$14\frac{2}{16}$	———	———	———		
14	F	$14\frac{6}{16}$	······	······	······	······	······
15	F	$14\frac{10}{16}$	······	······	······	······	
16	F	$14\frac{11}{16}$	······	······	······		
17	F	15	———	———	———	—	
18	M	$15\frac{2}{16}$	······	······	······	······	
20	F	$15\frac{4}{16}$	———	———			
21	F	$15\frac{5}{16}$	———	———	———		
22	M	$15\frac{8}{16}$	······	······	······		
23	M	$15\frac{12}{16}$	———	———	—		
24	M	$15\frac{12}{16}$	———	———	———	———	
25	F	$15\frac{13}{16}$	———	———	———	———	———
26	M	$15\frac{14}{16}$	······	·····			
27	F	$16\frac{1}{16}$	······	······	······	··	
28	F	$16\frac{2}{16}$	······	······	······		
29	M	17	———	———	———	—	
30	M	$17\frac{8}{16}$	———	———	———	———	—
31	F	$17\frac{12}{16}$	······	······	······	··	
32	M	$17\frac{14}{16}$	······	······	······	······	
33	M	$17\frac{14}{16}$	———	———	———	—	
34	F	18	———	———	———	———	———
35	F	18	———	———	———	———	—
36	F	$18\frac{4}{16}$	———	———			
37	M	$18\frac{4}{16}$	······	······	······	······	····
38	M	$18\frac{5}{16}$	———	———	———		
39	F	$18\frac{10}{16}$	······	······	······	··	
40	F	19	———	———			
41	M	19	———	———	———		
42	M	$19\frac{4}{16}$	———	———	———	—	
43	F	$19\frac{6}{16}$	······	··			
44	F	$19\frac{6}{16}$	······	······	······	······	
45	F	$19\frac{7}{16}$	———	———	———	———	
46	F	$19\frac{8}{16}$	———	———	———	—	
48	M	$20\frac{8}{16}$	··				
49	F	$21\frac{6}{16}$	······	······	······	······	····
50	M	$21\frac{12}{16}$	———	———	—		
			¼ inch.	½ inch.	¾ inch.	1 inch.	

More clearly to mark the lengths, the odd 16ths are dotted lines, while the even are plain. Thus, in No. 22 the umbilicus was situated $\frac{11}{16}$ below the centre, while in No. 23 it was situated $\frac{12}{16}$ below, 11 being an odd number, 12 an even.

TABLE II.

A Table giving the length and weight of 50 children, together with the weight of the different organs, arranged in the order of the respective lengths of the children.

No.	Sex.	Length of body.	Length of extended arms.	Length from heels to umbilicus.	Weight of body.	Weight of liver.	Weight of lungs.		Weight of heart.	Weight of kidneys.		Weight of spleen.	Weight of thymus	Weight of suprarenal capsules.		Weight of placenta.	Length of cord.	Cause of death.
							R.	L.		R.	L.			R.	L.			
1	M	$5\frac{10}{16}$	$5\frac{7}{16}$	$2\frac{3}{16}$	45	...	1·05	·9	·37	·15	·16	...	...	...	...	...	...	Intra-uterine.
2	M	8	$8\frac{1}{16}$	$3\frac{2}{16}$	175	10·3	3·	2·5	2·	·8	·8	...	...	·65	...	...	...	Ditto.
3	F	$8\frac{12}{16}$	$8\frac{9}{16}$	$3\frac{10}{16}$	190	11·3	3·4	2·9	1·4	1·	1·	...	...	...	...	...	...	Miscarriage.
4	F	$9\frac{12}{16}$	$9\frac{4}{16}$	4	152	12·3	3·4	2·85	1·5	1·06	1·07	·34	·23	...	·64	137	...	Ditto.
5	F	$12\frac{10}{16}$	$12\frac{4}{16}$	$5\frac{14}{16}$	619	14·	4·6	3·25	5·	1·6	1·45	·85	·25	...	·5	120	...	Intra-uterine.
6	F	$12\frac{13}{16}$	$12\frac{2}{16}$	$5\frac{15}{16}$	500	13·1	4·25	3·47	3·47	1·29	1·29	·34	·48	·6	·5	142	...	Ditto.
7	M	$12\frac{14}{16}$	12	$5\frac{12}{16}$	653	...	...	...	...	...	...	...	...	...	...	...	...	Ditto.
8	F	13	12	$5\frac{8}{16}$	643	67·	...	...	...	...	...	...	...	...	...	...	...	Ditto. Peritonitis. Calcareous patch in right iliac region.
9	F	13	$13\frac{2}{16}$	6	740	37·5	10·3	7·8	4·42	4·27	4·2	·92	2·77	1·5	1·46	220		
10	F	$13\frac{8}{16}$	$12\frac{8}{16}$	$5\frac{14}{16}$	695	43·7	8·6	6·9	5·14	3·72	3·85	5·3	1·28	1·3	1·35	...	...	Intra-uterine.
11	F	14	...	...	1000	...	...	...	...	...	...	...	...	...	...	...	...	Ditto.
12	F	$14\frac{2}{16}$	...	$6\frac{5}{16}$	...	40·85	12·6	11·67	6·67	3·24	3·11	1·3	2·64	1·38	1·63			
13	M	$14\frac{4}{16}$	...	...	620	...	...	...	...	...	...	...	...	...	...	...	...	Ditto.
14	F	$14\frac{6}{16}$	$12\frac{14}{16}$	6	860	42·	10·65	9·	5·45	3·7	3·6	5·2	...	...	...	...	...	Ditto.
15	F	$14\frac{12}{16}$	$14\frac{5}{16}$	$6\frac{6}{16}$	1040	56·	12·07	11·17	7·4	5·12	5·63	4·88	1·52	...	1·39	...	...	Ditto. Syphilis. Liver in condition described in paper.
16	F	$14\frac{14}{16}$	$14\frac{2}{16}$	$6\frac{10}{16}$	900	42·	15·45	12·3	...	3·12	2·9	...	...	1·44				
17	F	15	15	$6\frac{12}{16}$	1090	48·4	12·52	9·35	8·9	4·07	4·22	2·28	3·55	·5	·5	450	$13\frac{5}{16}$	
18	M	$15\frac{2}{16}$	$14\frac{12}{16}$	$6\frac{10}{16}$	1002	57·	13·05	10·25	7·12	4·55	4·77	1·75	3·6					
19	F	...	...	...	950	80·	19·6	14·6	...	5·27	5·05	6·7						
20	F	$15\frac{4}{16}$	...	$7\frac{2}{16}$	...	86·2	38·5	33·5	11·62	6·27	5·67	5·35	1·53	2·15	2·38			
21	F	$15\frac{5}{16}$	14	$6\frac{14}{16}$	1250	83·	13·24	10·97	8·75	6·91	6·72	9·14	·93	1·9	1·95	...	...	Intra-uterine.
22	M	$15\frac{8}{16}$	$15\frac{9}{16}$	$7\frac{1}{16}$	1289	70·	14·1	11·85	8·7	7·42	6·3	1·45	7·45	1·8	1·82	590	$18\frac{5}{16}$	Twins.
23	M	$15\frac{12}{16}$	$15\frac{8}{16}$	$7\frac{4}{16}$	1319	70·	17·05	13·72	9·4	7·47	7·6	1·45	9·1	2·44	2·32		21	
24	M	$15\frac{12}{16}$	...	$6\frac{14}{16}$	...	47·4	16·	14·25	...	...	...	...	...	...	...	...	...	Ditto.

No.	Sex.	Length of body.	Length of extended arms.	Length from heels to umbilicus.	Weight of body.	Weight of liver.	Weight of lungs.		Weight of heart.	Weight of kidneys.		Weight of spleen.	Weight of thymus.	Weight of supra-renal capsule.		Weight of placenta.	Length of cord.	Cause of death.
							R.	L.		R.	L.			R.	L.			
25	F	$15\frac{13}{16}$	$15\frac{2}{16}$	$6\frac{10}{16}$	1480	74·	14·95	11·56	8·67	7·45	6·57	11·79	1·58	1·91	2·02	242	13	Intra-uterine.
26	M	$15\frac{14}{16}$	$15\frac{9}{16}$	$7\frac{8}{16}$	1450													
27	F	$16\frac{1}{16}$	$15\frac{2}{16}$	$7\frac{3}{16}$	1610	55·2	10·3	7·9	6·55	4·45	3·	2·22	1·22	1·45	1·47	290	15	Ditto.
28	F	$16\frac{2}{16}$	$15\frac{4}{16}$	$7\frac{6}{16}$	1460	53·	19·65	15·07	9·3	7·84	7·52	2·05	3·75	1·7	2·05	...	...	Ditto.
29	M	17	$17\frac{4}{16}$	$7\frac{10}{16}$	2110	60·	26·4	22·5	15·	9·9	11·75	5·1	3·4					
30	M	$17\frac{8}{16}$	$17\frac{4}{16}$	$7\frac{10}{16}$	1790													
31	F	$17\frac{12}{16}$	$17\frac{8}{16}$	$8\frac{1}{16}$	1945	120·	23·9	16·5	13·4	8·9	8·3	4·8	7·52	2·9	3·4			
32	M	$17\frac{14}{16}$	$17\frac{2}{16}$	8	2100	90·	19·4	15·12	19·7	5·05	5·2	10·	1·77	2·75	2·71	...	...	Ditto.
33	M	$17\frac{14}{16}$	$17\frac{8}{16}$	$8\frac{1}{16}$	1805	85·	...	...	16·8	7·3	7·2	7·2	2·9	2·8	3·			
34	F	18	$16\frac{14}{16}$	$7\frac{10}{16}$	2280	107·	22·9	17·82	11·9	9·15	10·8	9·35	3·32	3·25	3·25	...	...	Ditto. Syphilis, giving rise to condition of liver described in paper.
35	F	18	$16\frac{12}{16}$	$7\frac{14}{16}$	2022	122·	22·02	16 67	14·7	8·	7·85	6·42	4·74	2·74	3·7			
36	F	$18\frac{4}{16}$	$17\frac{10}{16}$	$8\frac{10}{16}$	1970	93·	15·95	12·4	21·	7·62	8·5	7·65	6·42	1·52	1·7	...	...	Child lived 24 hours. Severe hæmorrhage from cord.
37	M	$18\frac{4}{16}$	$18\frac{12}{16}$	$7\frac{15}{16}$	2520	125·	32·8	24·35	17·4	12·05	12·1	9·7	13·65	2·9	2 8			
38	M	$18\frac{5}{16}$	$17\frac{10}{16}$	$8\frac{7}{16}$	1875	72·	16·25	14·75	14·25	6·48	6·5	3·25	4·05	1·6	1·9			
39	F	$18\frac{10}{16}$	$17\frac{9}{16}$	$8\frac{8}{16}$	1885													
40	F	19	18	9	2130	...	...	...	...	...	...	...	...	...	...	...	...	Intra-uterine. Growth between kidneys.
41	M	19	$18\frac{8}{16}$	$8\frac{12}{16}$	2404	79·	29·97	22·3	...	9·28	8·32	7·8	4·5	3·02	3·13			
42	M	$19\frac{4}{16}$	...	$8\frac{13}{16}$	...	131·8	41·5	33·2	19·9	13·3	14·6	5·9	11·05	3·	4·7	...	..	Intra-uterine.
43	F	$19\frac{6}{16}$	$19\frac{8}{16}$	$9\frac{6}{16}$	2517	117·	20·7	14·7	17·41	11·7	10·62	6·93	6·44	1·94	1·92	...	...	Head burst with forceps.
44	F	$19\frac{6}{16}$	$18\frac{4}{16}$	$8\frac{10}{16}$	2815	160·	31·05	23·02	19·57	6·5	7·4	4·85	5·93	3·3				
45	F	$19\frac{7}{16}$	$17\frac{14}{16}$	$8\frac{12}{16}$	3040	137·	19·	16·8	19·1	10·8	9·7	10·	4·					
46	F	$19\frac{8}{16}$	19	$8\frac{14}{16}$	2870	160·	39·8	31·64	13·12	13·02	12·5	6·32	6·12	4·47	5·02	...	...	Child found in a pail of water.
47	F	...	...	...	...	169·	34·1	27·5	18·3	13·8	14·3	10·15	16·1					
48	F	$20\frac{8}{16}$	$20\frac{10}{16}$	$10\frac{3}{16}$	3794	187·	37·7	29·8	25·2	15·32	15·2	11·5	14·02	4·75	5·98			
49	F	$21\frac{6}{16}$	21	$9\frac{8}{16}$	3590	167·	32·22	27·8	...	12·22	15·15	...	...	...	...	...	...	Intra-uterine.
50	M	$21\frac{12}{16}$	$20\frac{4}{16}$	$10\frac{4}{16}$	4289	237·	31·9	28·3	34·7	20·	22·5	16·3	16·4	5·6	7·3			

TABLE III.

Table to show the weight of the lungs before and after respiration.

Cases in which no respiration had taken place.

<table>
<tr><th>No.</th><th>Weight of body.</th><th>Weight of lungs.</th><th>Relation of lungs to body.</th><th>Relation of lungs to liver.</th><th>Relation of lungs to kidneys.</th></tr>
<tr><td>17</td><td>1090</td><td>21·87</td><td>1 : 49·8</td><td>1 : 2·21</td><td>1 : ·382</td></tr>
<tr><td>31</td><td>1945</td><td>40·4</td><td>1 : 48·1</td><td>1 : 2·97</td><td>1 : ·425</td></tr>
<tr><td>35</td><td>2022</td><td>38·69</td><td>1 : 52·2</td><td>1 : 3·15</td><td>1 : ·409</td></tr>
<tr><td>37</td><td>2520</td><td>57·15</td><td>1 : 44·0</td><td>1 : 2·18</td><td>1 : ·422</td></tr>
<tr><td>45</td><td>3040</td><td>35·8</td><td>1 : 84·9</td><td>1 : 3·82</td><td>1 : ·572</td></tr>
<tr><td>50</td><td>4289</td><td>60·2</td><td>1 : 71·2</td><td>1 : 3·93</td><td>1 : ·706</td></tr>
<tr><td colspan="3">Average . .</td><td>1 : 58·3</td><td>1 : 3·04</td><td>1 : ·486</td></tr>
<tr><td colspan="6"><i>Cases in which imperfect respiration had taken place.</i></td></tr>
<tr><td>16</td><td>900</td><td>27·75</td><td>1 : 32·4</td><td>1 : 1·51</td><td>1 : ·216</td></tr>
<tr><td>18</td><td>1002</td><td>23·30</td><td>1 : 43·0</td><td>1 : 2·44</td><td>1 : ·400</td></tr>
<tr><td>22</td><td>1289</td><td>25·95</td><td>1 : 49·7</td><td>1 : 2·7</td><td>1 : ·524</td></tr>
<tr><td>23</td><td>1319</td><td>30·77</td><td>1 : 42·8</td><td>1 : 2·6</td><td>1 : ·489</td></tr>
<tr><td>28</td><td>1460</td><td>34·72</td><td>1 : 42·0</td><td>1 : 1·23</td><td>1 : ·442</td></tr>
<tr><td>43</td><td>2517</td><td>35·4</td><td>1 : 71·1</td><td>1 : 3·58</td><td>1 : ·63</td></tr>
<tr><td>44</td><td>2815</td><td>54·07</td><td>1 : 52·0</td><td>1 : 2·95</td><td>1 : ·257</td></tr>
<tr><td colspan="3">Average . .</td><td>1 : 47·6</td><td>1 . 2·43</td><td>1 : ·422</td></tr>
<tr><td colspan="6"><i>Cases in which complete respiration had taken place.</i></td></tr>
<tr><td>19</td><td>950</td><td>34·2</td><td>1 : 27·7</td><td>1 : 2·34</td><td>1 : ·301</td></tr>
<tr><td>36</td><td>1970</td><td>28·35</td><td>1 : 69·5</td><td>1 : 3·58</td><td>1 : ·568</td></tr>
<tr><td>38</td><td>1875</td><td>31·0</td><td>1 : 60·4</td><td>1 : 2·32</td><td>1 : ·418</td></tr>
<tr><td>41</td><td>2404</td><td>52·27</td><td>1 : 45·9</td><td>1 : 1·51</td><td>1 : ·336</td></tr>
<tr><td>46</td><td>2870</td><td>71·44</td><td>1 : 40·1</td><td>1 : 2·23</td><td>1 : ·357</td></tr>
<tr><td>48</td><td>3794</td><td>67·5</td><td>1 : 56·2</td><td>1 : 2·77</td><td>1 : ·452</td></tr>
<tr><td colspan="3">Average . .</td><td>1 : 49·9</td><td>1 : 2·36</td><td>1 : ·405</td></tr>
</table>

ON THE

TREATMENT OF ACUTE RHEUMATISM BY SALICYLATE OF SODA.

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Although a large number of cases of acute rheumatism treated by salicin and its compounds have been published, it may be useful to give the results of this method of treatment as carried out at St. Thomas's Hospital, quoting only exceptionally cases in detail. The remarks made are to be taken simply as products of an experience confined to this hospital. The cases thus treated during the past year have been very numerous, and I have personally taken notes of about forty, which together with the impressions made upon me by the rest are the basis of the statements made below.

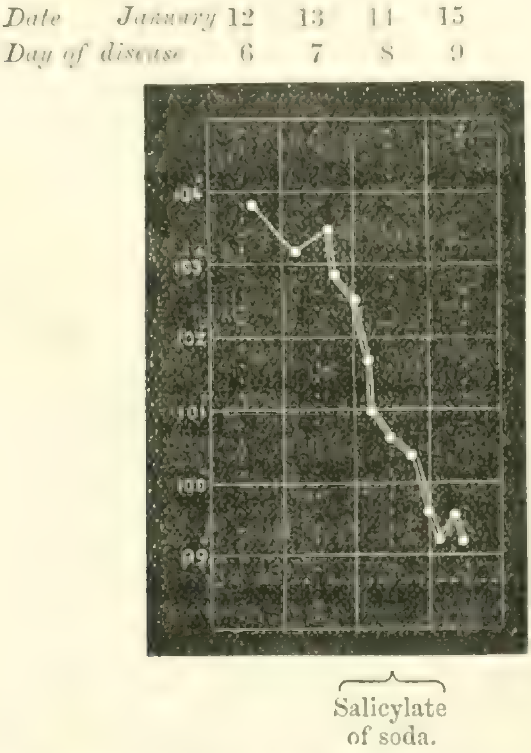
Some cases were treated with salicin, some with salicylic acid, but in the great majority salicylate of soda was employed; for the latter not only has the advantage of being readily soluble in water, but it seems also to be more effectual than the other two. At first 30 grains every two or three hours was the quantity prescribed; but latterly 20 grains repeated at the same intervals have been found to answer the purpose equally well, and to be capable of being taken with less chance of unpleasant results. Smaller quantities than these, however, are rarely effectual in the adult.

The following may be taken as an example of a successful case. (See Temperature Chart I.)

James F—, æt. 27, was admitted into Charity Ward, under Dr. Bristowe, on January 12th, 1878.

He had had four previous attacks of rheumatic fever, the first at the age of seventeen, and the last a year ago. He had always had good health in the intervals between the attacks, and had never suffered from symptoms of cardiac disease. During the month previous to admission he had had a cough and cold, and six days before admission he was seized with pains in the ankles, which subsequently affected the knees, shoulders, and left arm.

CHART I.



N.B.—The period of taking salicylate is indicated by a double line.

On the night of the 12th he had no sleep on account of pain in the joints, and on the morning of the 13th he had pain in the ankles, knees, shoulders, left elbow, and wrist, and all these joints were somewhat swollen. The tongue was thickly furred, white, and moist; the bowels had been confined for three days; the appetite was bad, and the patient very thirsty.

the temperature was 103°—104°, and the skin perspiring; pulse 112; respiration 28.

Cardiac dulness was normal in extent, the sounds muffled, but there was no murmur. The lungs were resonant throughout, and there was a little crepitation at both bases.

Urine sp. gr. 1028, high coloured, clear, and contained a small quantity of albumen. One pint eleven ounces had been passed in the last twenty-four hours.

The temperature which had been taken several times since admission remained between 103° and 104°, and the patient was ordered at 1.30 p.m. on the 13th to take—

Sodæ Salicyl., gr. xx;
Syrupi Aurantii, ʒj;
Aquæ destill., ℥j.

and the medicine to be repeated every three hours.

April 14th.—Had a very good night; the pain was easier after the first dose, and is gone this morning. The patient has perspired very profusely, much more so than before he took the medicine and is a little deaf. Temp. 101°; pulse 100; resp. 32.

The urine which he passed four and a half hours after taking the first dose gave a deep purple coloration on the addition of a solution of perchloride of iron, showing the presence of a salicylic compound. No evidence of cardiac or pulmonary disease. The urine contains about the same quantity of albumen.

15th, a.m.—Bowels not open since admission, notwithstanding his having taken purgative medicine; tongue very thickly coated. No pain. Temp. 99·2°. Is somewhat deaf, and has "sounds like music" in his ears. Perspiring very freely; slept well, dreaming however a good deal. No nausea or sickness. Pulse 96; resp. 28. Urine in the last twenty-four hours one pint seven ounces. The patient appears fidgetty and nervous, and looks somewhat wild, as they often do when beginning to suffer from salicylic poisoning.

P.m.—Bowels open.

At 4 p.m. the medicine was stopped.

16th.—Fidgettiness much less; did not sleep quite so well; still a little deaf, but no noises in the ears; perspiration much less profuse.

In the last twenty-four hours one pint and three quarters of urine passed of sp. gr. 1038. No albumen; marked reaction with perchloride of iron.

The temperature never rose again, and the patient had no return of pain or other rheumatic symptoms, and was discharged on January 28th. The salicylic acid disappeared from the urine seventy-one hours after the last dose was taken.

The patient took sixteen doses of the medicine in the two days, making in all 320 grains.

When the drug is given in these quantities the first result usually is diminution of pain, and so rapid is this that it often follows the first or second dose. With it the temperature also is reduced, and there is profuse perspiration. The patient generally complains too of deafness and noises in the ears. These effects are pretty constant, and may be accompanied by nausea or even vomiting, so that the medicine has to be stopped; the latter, however, is rather an exceptional occurrence. The swelling and redness leave the joints much less rapidly than the pain, and the tongue often remains furred long after the patient feels quite comfortable, and is almost free from fever.

Salicin has the advantage of producing to a far less extent, and often not at all, the unpleasant phenomena which are pretty constant when salicylate of soda is given; but its power of reducing the temperature seems to be much smaller than that of the salicylate, even when given in the same quantities.

A not at all uncommon accompaniment of the internal use of salicylate of soda is a profuse miliary eruption, which very often becomes pustular. Sometimes vesicles of a considerable size, filled with pus, are distributed over the body, and even a succession of very troublesome pustules may result. The greater frequency of the miliary eruption when this treatment is employed, and its greater proneness to suppuration, make it probable that it is in some way due to the salicylate, especially when we remember what profuse diaphoresis is produced by the drug. In one case a general erythema preceded the miliary eruption, and in another urticaria occurred, but I have only seen one case of each.

In some cases the drug seems to affect the nervous system, more especially, and delirium may be very rapidly produced.

In other cases nervous symptoms do not supervene until a considerable quantity of the salicylate has been taken. Rapidly supervening delirium is not so common as that produced after a while, and when it does occur it is often exceedingly violent. A curious circumstance is that if in such a case the medicine be stopped until the delirium has passed off, and be then again administered, the patient sometimes takes it without any recurrence of cerebral symptoms.

The delirium which occurs after a considerable quantity of the drug has been taken may, or may not, be violent; it is generally preceded and accompanied by great restlessness, rapid breathing, and dryness of the tongue. The patient dreams, and has varied hallucinations. One patient, for instance, thought he had left the hospital and had gone to a theatre, where he saw duelling going on and people advancing to kill him, and the entrance to the ward appeared like a lighted tunnel. Still, however unpleasant the immediate consequences of the administration of the drug to patients who take it badly, these all rapidly subside after it is left off, and no permanent injury is done.

It is at present impossible to distinguish those cases who are likely to take the medicine with rapidly good effect, and without any unpleasant results from those who are intolerant of it. But it may be stated that persons in great pain, and with high fever, and in whom there is not, when the treatment is commenced, any complication, are, as a rule, the most favorable cases for it. Still slight complications, whether cardiac or pulmonary, should not preclude the treatment by salicylate of soda. Indeed, cases occur in which the drug produces rapid relief of the pain and joint affection, and no unpleasant symptoms whatever, notwithstanding the presence of pretty serious complications. Usually, however, the drug seems to have very little effect in modifying the course of cardiac or pulmonary affections occurring in acute rheumatism, although it may reduce the temperature in spite of them.

A girl of eighteen, for instance, had been in the hospital under Dr. Murchison for five days, with a temperature which ranged generally from 101° to 103°. Salicylate of soda was then given, which reduced the temperature to 97·8° in about fourteen hours. The medicine was then stopped, and on the third day from that time an acute pneumonia of the right lung, pericarditis, and pleurisy on the left side made their appearance. Twelve hours after these complications were discovered the temperature was still 98·6°, and in twelve hours more the girl died with her temperature below 100°, but with a pustular miliary eruption, pericarditis, left pleurisy, and consolidation of a large part of the right lung.

When the treatment is commenced before any secondary affections have made their appearance, the probabilities of their doing so are, of course, very greatly diminished, but they are not even under such circumstances necessarily prevented, for both cardiac and pulmonary diseases have arisen in several cases while the system was saturated with salicylate of soda.

The question of the production of albuminuria by the salicylate is one which has received some attention, and it has even been suggested that the delirium may be due to this cause. There is no doubt that occasionally albumen makes its appearance in the urine after the treatment has been commenced; but the facts—that in the great majority of cases it does not do so; that in many cases in which albumen is present before the drug is given it disappears during its administration; and, finally, that albumen is frequently present in the urine of rheumatic patients with high temperature before any treatment whatever has been applied, go far to prove that the albuminuria ordinarily has nothing to do with the medicine.

It is only recently that I have been carefully observing the occurrence of albuminuria in cases of rheumatic fever with a view to determine how far it is a result of the treatment by salicylate of soda. Out of ten cases in which albumen was present, seven had it before the drug was administered, and it disappeared in all these while the urine still gave a strong reaction with the perchloride of iron. In the eighth case the urine was not tested for albumen before the medicine was given, but albumen was found in it and disappeared from it while it still contained the salicylate. In the remaining two cases the urine contained no albumen before the treatment was commenced, but it made its appearance afterwards, and again disappeared while the urine still contained the drug.

At any rate it can be stated with certainty that salicylate of soda, when given in the ordinary doses, never produces permanent albuminuria. That the delirium is not due to albuminuria is equally certain, for in many cases, if not in most, there is no albumen present during the period of delirium. It seems, indeed, probable from the experience of this hospital that the presence of a small quantity of albumen in the urine should be no objection to the treatment by salicylate of soda, as the latter is just as effectual in such cases, and is not more likely to be attended with unpleasant results than in those in which the urine is free from albumen.

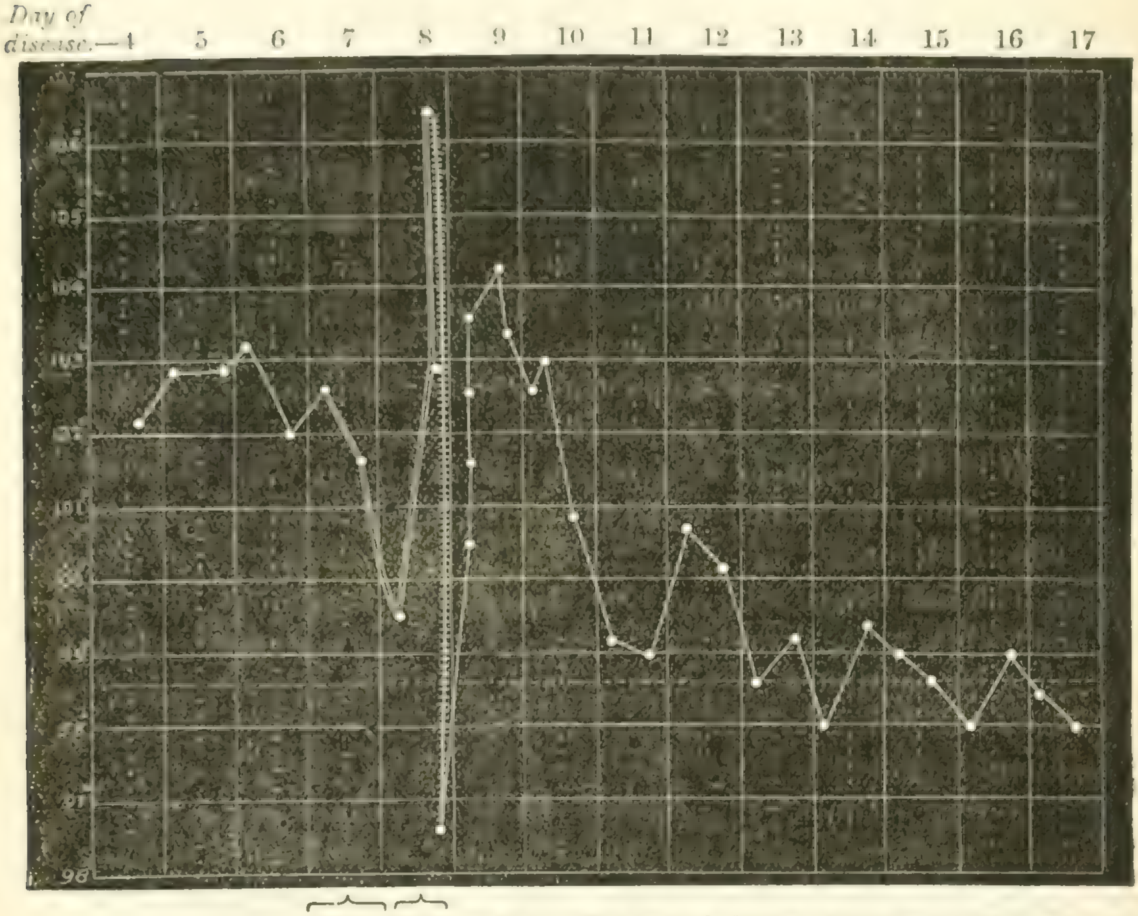
The delirium is probably due to the action of the salicylic acid on the brain itself. Of nine cases of delirium occurring during the administration of the drug, of which I have notes, two had neither albuminuria nor complications; two had a very small amount of albumen in the urine and no complications; two had no albuminuria, but had complications; two had no albuminuria, and the presence of complications at the time of the delirium was doubtful, while the remaining one had both albuminuria and complications.

It is, in fact, at present impossible to say in what class of cases delirium does occur, so varied is the condition of patients affected by it.

The liability to relapses after the salicylic treatment is considerable, especially when the drug is suddenly stopped. But if it be continued in much smaller quantities for some time after the temperature is normal, this liability is very greatly diminished.

A very curious train of symptoms occurred in three cases of acute rheumatism, which were being treated with salicylate of soda, viz. a very high temperature, accompanied by great restlessness and delirium. In one case these occurred immediately after stopping the drug, and in the other two while the patients were still taking it. In one of these cases there was a considerable quantity of albumen in the urine before the treatment was commenced, but no other complications; in another there was no albuminuria, but a mitral systolic murmur; and in the last there was a trace of albumen, but no other complications. The only character which these cases had in common besides those mentioned above was the presence of a profuse miliary eruption, which became pustular. In one case (that represented in Chart II) the temperature rose to 106·4°, in the second to 106°, and in the third to 105·4°. In each case a graduated cold bath was given, which not only reduced the temperature to normal (though it rose again to a considerable height) but also put a stop to the delirium, restlessness, and insomnia. All three cases got well pretty rapidly afterwards.

Chart II. (*Case of Dr. Bristowe's.*)



N.B.—The period during which salicylate was given is shown by a double line; the effect of the bath by a crossed line.

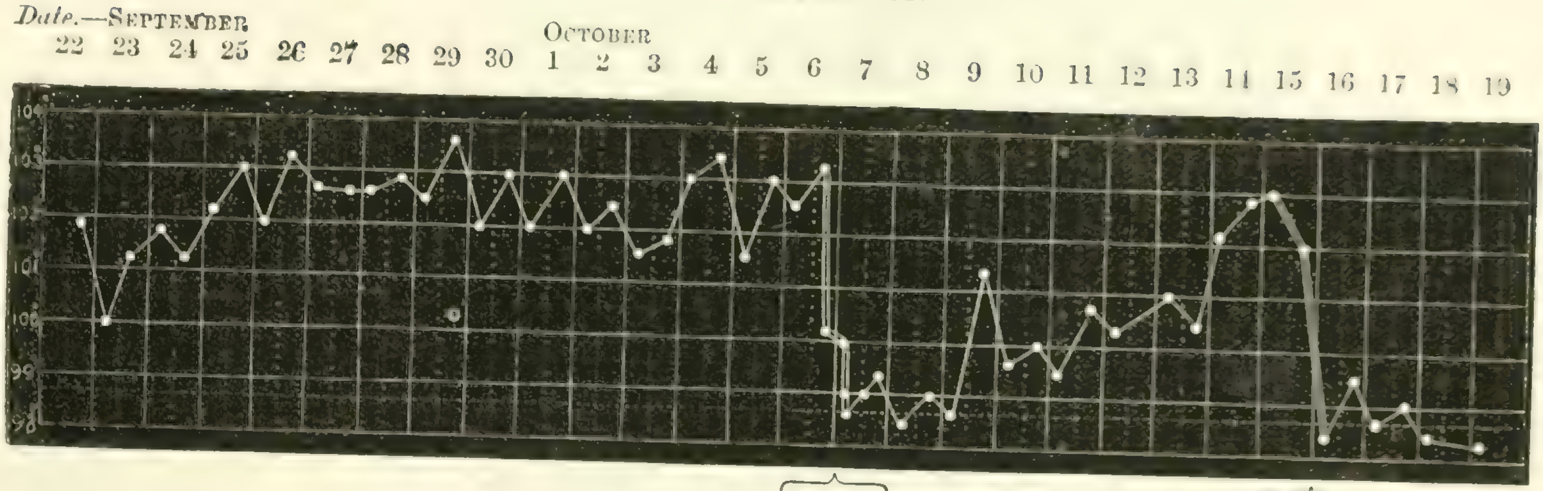
As regards the effect of salicylate of soda on the amount of urine passed, I have not been able to come to any definite conclusion. It seems, however, often to diminish it considerably, and also the total quantity of urea. The percentage of urea, too, is affected in the same way, but to a much smaller extent. These variations are well seen in the charts in which my friend Mr. Theodore Acland has recorded the results of his experiments, and which he has used to illustrate a paper which he read before the St. Thomas's Hospital Physical Society, reprinted in this volume.

It has recently been asserted that sugar makes its appearance in the urine of persons taking salicylate of soda. To determine this the urine of several patients who had taken large quantities of the salicylate, and whose urine gave a very strong reaction with the perchloride of iron, was tested by boiling with Fehling's solution. At first a precipitate came down, which appeared to be whitish; but on boiling for several minutes longer the whole mixture gradually changed to a reddish-brown colour. This, however, appeared to be due not to any change in the colour of the precipitate, but rather to a change in the fluid. Mr. Theodore Acland then offered to determine whether the precipitate contained copper. The mixture was placed on a filter, and the filtrate came through as a strongly dichoic fluid, olive green by reflected and reddish brown by transmitted light. The precipitate well washed was perfectly white, and dissolved completely in two drops of hydrochloric acid. Ammonia was then added in excess without any colour at all appearing in the fluid, which remained like water, and was consequently free from copper. This showed that the urine had not reduced and precipitated the copper, as it does when it contains sugar.

I then tried the fermentation test. Two test tubes were filled with urine from a case of rheumatic fever, which contained a large quantity of salicylate of soda. In one some German yeast was placed, and in the other none. They were both inverted over mercury, and placed on the ward stove for twenty-four hours. At the end of that time there was hardly any change in the contents of either. When some grape sugar was added to the urine, however, a large quantity of gas was produced by fermentation. It seems then pretty clear that if any sugar at all be present in the urine of these cases its quantity must be infinitesimal.

The drug makes its appearance in the urine very soon after ingestion, but the exact time is not easy to determine, as it may have been excreted by the kidneys long before it is passed from the bladder. In ten cases in which I noted its first appearance, the earliest was one hour and forty minutes after ingestion, the latest eleven and a half hours. In ten cases in

CHART III.



Taking Pot. citratis gr. xxx, træ. Opii ♏iij, every four hours.

Sodæ salicyl. gr. xx every two hours.

Sodæ salicyl. gr. xx every two hours.

Convalescent.

N.B.—The period during which salicylate was given is shown by a double line in the temperature chart.

This chart shows the rapid effects of salicylate of soda in a case where other treatment was ineffectual. The pain and swelling of joints were reduced rapidly, like the temperature.

which I noted the time of its disappearance from the urine the shortest time was sixteen hours, the longest ninety-six hours. I have found it not only in the urine, but also in the blood, in the serum from blisters, and in the expectoration,—care being taken in the case of the latter to prevent any possible admixture of the medicine as it passed through the mouth. I have on several occasions tested the perspiration of patients whose system was saturated with salicylate of soda, and I have managed to get considerable quantities collected in test tubes for examination, but I have never detected evident signs of the drug in that excretion. This is the more curious as the perspiration is so remarkably increased by this treatment. It is not found in the fluid of hydatids from patients who are taking the salicylate at the time of tapping.

Any one who has seen many cases of acute rheumatism treated by salicylate of soda must, I think, allow that its discovery as a cure for that disease is a triumph of empirical therapeutics, which has probably had but few parallels in the history of medicine. It has now had a fair and extensive trial, and to say that it far excels any other method of treatment would be to give the drug but scanty praise. It may rather be said that until the application of salicin and its compounds to the treatment of rheumatic fever, there was no drug which could be relied upon to shorten, to any great extent, its tedious course. Now, however, making due allowance for cases of failure, which do undoubtedly occur, not only can cessation of the primary phenomena of the disease—pain and fever—be rapidly secured, but we likewise have good grounds for hope, that owing to the remarkable power which the drug possesses of curtailing the duration of the disease, those secondary affections of the heart which make acute rheumatism so serious, may be greatly diminished in number and intensity.

In conclusion I have to thank the physicians, one and all, for very kindly allowing me to make use of their cases for the purposes of this paper.

ON THE USE
OF THE
GRADUATED BATH
FOR THE
REDUCTION OF HIGH TEMPERATURE IN FEVERS,

WITH AN ANALYSIS OF, AND REMARKS ON,

SIXTY CASES OF ENTERIC FEVER TREATED IN ST. THOMAS'S HOSPITAL IN THE AUTUMN OF 1877 AND THE WINTER OF 1877 TO 1878.

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Part I.—*Analysis of Cases of Enteric Fever.*

In connection with the subject of the treatment of high temperature in fever and acute rheumatism by graduated baths, a short review of the cases of enteric fever treated in the hospital during the past autumn and winter may be of some interest and use for reference. The occurrence of a somewhat considerable outbreak of enteric fever has, in fact, given the opportunity of using the baths in such a way as to allow of making some trustworthy deductions as to their therapeutic value. The cases observed have also offered several points worthy of being recorded.

From the end of July, 1877, to the end of March, 1878, 60 cases of enteric fever have come under treatment, and have been distributed as follows among the physicians:—To Dr. Bristowe 24, Dr. Murchison 14, Dr. Stone 11, Dr. Ord 11.

The admissions were chiefly in the autumnal months, by far the greatest number in October, as is seen in the annexed table.

TABLE 1.—*Admitted in each month.*

August	6
September	7
October	23
November	10
December	7
January	4
February	1
March	2
Total	60

Of the 60, 32 were males, 28 females.

The ages varied from 7 months to 52 years. They are here tabulated:

TABLE 2.—*Ages of Patients.*

Under 5 years.	5–10 years.	10–15 years.	15–20 years.	20–30 years.	30–40 years.	40–50 years.	50–60 years.
2	5	11	16	18	6	1	1

The fatal cases were 8 in number, making 1 in 7½ cases, or 13·33 per cent.

The ages of those who died were 5, 10, 19, 19, 21, 22, 34, and 36 years respectively.

The total of deaths among cases admitted or treated for enteric fever was 9. But inasmuch as one of those died from typhus contracted from another patient during the subsidence of enteric fever, and as the enteric attack was proceeding in all respects favorably when the second disease made its invasion, the death is not included among those forming the basis of the percentage calculation. The notes of one of the other fatal cases have been removed, and are not accessible at the time of writing, but should they fall into my hands will be placed in a short abstract at the end of the paper.

Well-marked relapses occurred in nine cases, but it is probable that one or two of the cases admitted were actually relapses after mild primary attacks.

As regarded the commencement of illness there was an unusual definiteness in the symptoms. Shiverings, attacks of headache, vomiting, diarrhœa, or bronchitis commonly marking the access. There was, as might be expected, a considerable variation in the probable duration of the illness before admission in different cases, and as such variations affected the extent to which certain symptoms, the eruption in particular, could be observed, I have drawn up the following table.

Table III.—*Table of duration of illness previous to admission.*

In 11 cases	5 days and under.
„ 22 „	from 6 to 10 days.
„ 18 „	„ 11 to 15 „
„ 0 „	„ 16 to 20 „
„ 4 „	„ 21 to 30 „
„ 2 „	over 30.

In one case the patient was attacked while under treatment in the hospital, 16 days after admission.

The termination of fever, marked by the resumption of normal temperatures, and calculated from the probable date of access, varied to a remarkable degree.

Table IV.—*Table of duration of febrile state in cases of recovery, stated in weeks in thirty-eight cases.*

Recovery in 1st week	0	Recovery in 6th week	16
„ 2nd „	2	„ 7th „	2
„ 3rd „	4	„ 8th „	1
„ 4th „	10	„ 9th „	1
„ 5th „	9	„ 10th „	3

Only 38 cases are here tabulated, several complicated cases, as well as the fatal cases, being omitted.

Death occurred on the 15th, 25th, 29th, 33rd, 37th, and 114th day in cases where the date of commencement was known. In one other it occurred, probably on the 38th day. In the two remaining no trustworthy data could be obtained, the patients being delirious from the time of admission.

No data bearing on the period of incubation are available.

The average stay in the hospital was about 5 or 6 weeks, 8 patients going out in the 5th, 11 in the 6th week; but one was discharged within the first week, and on the other hand another stayed 113 days.

Eruption.—In many of the 60 cases a distinctly marked eruption was present at the time of admission. In 17 of such cases the commencement of illness was well-enough defined to allow of inference as to the day of illness on or before which the eruption appeared.

In 1 case admitted on the 5th day the eruption existed at admission, and in this case the spots continued to appear during 11 consecutive days, final disappearance occurring on the 15th day, or 19th of the illness.

In 9 out of the 17 the eruption was present on the 7th day, and the duration afterwards was from 5 to 10 days. In 1 on the 8th, lasting 9 days; in 1 on the 9th, lasting 6 days. In 2 on the 14th; not observed later. In 2 on the 15th, with, in one of them, duration of 5 days. In one on the 21st, lasting 7 days. This was probably a case of relapse.

In 10 of the cases, therefore, the eruption had appeared on or before the 7th day, and the general subsequent duration was to a day between the 12th and 20th, mostly to the 14th or 15th day.

In several cases no note of rash is to be found, nearly all these having been admitted after the 14th day of illness. In two very mild cases, however, admitted on the 3rd and 7th days respectively no rash was observed.

In 13 cases the appearance of rash after admission was noted.

In one case the rash appeared on the 4th day and lasted 14 days.

In one case where the illness began after admission for another ailment, the rash came out on the 6th day and lasted 7 days.

In one case the rash appeared on the 6th day, and lasted one week; and again on the 28th day, lasting 5 days. This was clearly a relapse.

In two cases on the 8th day, lasting 2 and 4 days respectively. In 2 on the 9th, lasting 3 days in one, 1 in the other. In 2 on the 10th, lasting 3 and 10 days. In one on each of the 11th, 16th, 17th, and 33rd days; that of the 11th lasting 10 days, of the 16th 2 days, of the 17th 11 days respectively, while in the last case the duration is not noted; but this and the preceding were both probably relapses.

Here with a date of commencement varying from the 4th to the 16th day of the fever, the rash lasted to a period varying between the 10th and the 21st, namely, to the 10th in 2, to the 12th in 3, to the 13th in 2, to the 18th in 2, and to the 20th and 21st in 1 severally.

Temperature.—Although this subject will be subsequently discussed in relation to the treatment by the graduated bath, some statement of the general course of the curves may be now given with advantage.

The following Table gives the highest evening and lowest morning temperature, and the average daily variations in each week of the disease, in all of the cases in which the records were available.

TABLE V.—*Showing highest evening and lowest morning temperatures*

No.	Highest evening temperature	Lowest morning temperature	1st week, average			2nd week, average			3rd week, average			4th week, average			5th week, average		
			M.*	E.	V.	M.	E.	V.	M.	E.	V.	M.	E.	V.	M.	E.	V
1	105·3, 27th day	99·6, 21st day	...	...		...		...	102·4	103·1	·7	101·6	102·7	1·1	...	...	..
2	104·8, 21st	97·0, 27th and 54th	...	...	...	...	...	...	...	...		99·4	103·2	3·8	98·2	98·8	·6
3	104·6, 3rd	96·6, 16th	103·5	104·5	1·0	102·4	103·4	1·0	97·5	98·9	1·4	97·5	98·8	1·3	...	...	..
4	105·6, day of admiss., 18th	96·0, 51st	...	...	...	101·9	103·6	1·7	103	104·2	1·2	103·0	104·5	1·5	100·2	102	1·
5	103·4, 4th	96·4, 21st	99·3	101·5	2·2	97·2	97·8	·6	97·8	98	·2	...	...	...	...	...	.
6	105·4, day of admiss., 21st	96·2, 46th	...	...	...	...	...	...	...	...	...	101·3	103·4	2·1	100·3	103·4	3·
7	104·2, 21st	96·0, 16th	...	...	...	99·5	102·9	3·4	97·2	98·8	1·6	97·7	98·5	·8	...	...	.
8	105·6, 11th	97·0, 25th	...	...	...	103·0	104·6	1·6	101·2	103·1	1·9	98·6	99·6	1·	99·1	101·1	2
9	105·0, 18th	96·1, 35th	...	...	...	...	...	...	102·2	103·8	1·6	100·2	103·2	3 0	97·8	100·0	2
10																	
11	103·8; day of admiss., 6th	96·0, 11th	...	...	...	98·1	100·3	2·2	96·8	97·3	·5	97·8	98·4	·6			
12	105·2, 10th	97·8, 17th	...	...	...	99·4	104·7	5·3	98·6	...	...	98·6	...	...	...	...	..
13	103·8, day of admiss., 14th	97·2 and 96·5, 18th	...	...	...	...	...	...	98·3	98·9	·6	...	...	...	...	...	..
14	103·5, 12th	96·9, 37th	...	...	...	..	...	...	101·2	102·5	1·3	98·2	99·7	1·5	97·5	98·8	1
15	105·8, day of admiss., 6th	97·4, 37th	...	...	...	...	...	...	...	104·3	...	99·0	101·9	...	100·4	103·3	2
16	104·6, 16th	96·0, 32nd	...	...	...	100·9	102·3	1·4	100·1	102·4	2·3	97·6	98·1	·5	98·2	98·4	·
17	105·4, 30th	96·7, 61st	...	...	...	102·4	104·1	1·7	100 4	102·4	2·0	102·2	104·0	1·8	101·6	102 9	1
18	104·4, day of admiss., 4th	96·7, 20th	4 days. 102	102·6	·6	99·0	101·6	2·6	97·5	98·7	1·2	98·3	97·7	·7	97·9	97·3	·
19	106·8, uncertain	97·6, same day	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..
20	104·4, 5th	97·0, 36th	101·4	102·9	1.5	98·1	99·5	1·4	99·4	100·8	1·4	97·9	98·7	·8	98·7	99·2	·
21	103·8, 11th	96·4, 26th	...	...	...	100·0	102·9	2·9	98·8	102·8	3·4	97·2	98·2	1·0	97·9	98·4	·
22	105·5, 8th	96·6, 21st	...	...	...	102·7	104·2	1·5	99·9	101·5	1·6	97·6	98·6	1·0	101·3	103·3	2·
23	105·2, 30th	97·2, 36th	...	...	...	103·2	104·2	1·0	100·9	102·6	1·7	101·3	103·6	2·3	100·5	103·5	3·
24	101·8, 6th	95·4, 34th	...	...	...	97·9	100·5	2·6	97·3	98·7	1·4	98·2	98·4	·2	98·1	99·2	1·
25	103·6, 16th	97·2, 44th	...	...	...	...	...	...	99·7	102·3	2·6	98·7	100·3	1·6	98·6	98·5	·
26	103·8, 32nd	96·6, 39th	...	...	...	99·1	102·5	3·4	98·3	102·5	4·2	98·8	102·6	3·8	97·7	100·6	2·
27	103·8, day of admiss., 14th	95·5, 21st	...	...	...	...	...	...	98·9	101·7	2·8	97·6	98·1	·5	98·0	98·8	·
28	102·6, 30th	96·0, 41st	...	...	...	...	...	...	97·4	99·1	1·7	97·6	97·6	·0	99·6	101·2	1·
29	105·6, 6th	101·9, 14th	103·6	105·3	1·7	103·1	104·3	1·2	...	...	...	...	...	...	...	...	.

* M. Morning, 8 o'clock. E. Evening, 8 o'clock. V. Variation.

l weekly averages of evening and morning temperatures and variations.

week, rage.		7th week, average.			8th week, average.			9th week, average.			10th week, average.			Remarks.
E.	V.	M.	E.	V.	M.	E.	V.	M.	E.	V.	M.	E.	V.	
…	…	…	…	…	…	…	…	…	…	…	…	…	…	Heart disease; temp. went up to 104·8 shortly before death.
98·0	·3	98·0	98·4	·4	98·0	98·0	0	98·6	101·0	2·4	99·6	99·2	·4	The rise in 9th week, not a relapse; œdema without albuminuria.
…	…	…	…	…	…	…	…	…	…	…	…	…	…	Occurred in hospital after pneumonia; alleged typhoid four months before.
99·4	1·2	…	…	…	…	…	…	…	…	…	…	…	…	Seven baths and subsequent spongings; good results.
…	…	…	…	…	…	…	…	…	…	…	…	…	…	Evening lower on three days in 2nd week; mild.
00·1	1·9	98·0	99·2	1·2	101·0	102·4	1·4	99·1	100·3	1·2	…	97·6		
…	…	…	…	…	…	…	…	…	…	…	…	…		Sudden fall of morning temp. on 9th day, as low as 98·4.
00·3	2·1	98·2	98·3	·1	…	…	…	…	…	…	…	…	…	Relapse on 31st day, after enema.
98·8	2·0	97·3	98·3	·1	…	…	…	…	…	…	…	…	…	Bath, Oct. 24th; temp. 105·0; reduced by bath to 100·6.
…	…	…	…	…	…	…	…	…	…	…	…	…	…	Temperature observations imperfect after 2nd week.
…	…	…	…	…	…	…	…	…	…	…	…	…	…	The variations in this week were very wide, although the average indicates little difference; the extreme range was 7·3.
9·5	1·5	97·3	98·1	·8	…	…	…	…	…	…	…	…	…	Sudden rise in 6th week (to 101·6), after enema.
…	…	…	…	…	…	…	…	…	…	…	…	…	…	Temperature sheet lost; bath.
9·8	1·0	100·1	98·4	1·7	97·5	98·0	·5							
…	…	…	…	…	…	…	…	…	…	…	…	…	…	Daily variations noted in separate report of case.
9·6	1·1													
3·8	1·4	98·6	100·6	2·0	98·3	98·7	·4							
0·8	2·1	98·8	99·6	·8	…	…	…	…	…	…	…	…	…	Relapse, with rigors and fresh spots.
7·3	1·1													
8·8	·4													
9·2	1·0													
9·7	2·1	96·5	97·0	·5	96·5	97·7	1·2							
…	…	…	…	…	…	…	…	…	…	…	…	…	…	It is to be noted that under the influence of baths the temperature fell as low as 98·0, but only for a short time.

[illegible]	Highest evening temperature.	Lowest morning temperature.	1st week, average.			2nd week, average.			3rd week, average.			4th week, average.			5th week, average.		
			M.	E.	V.	M.	E.	V.	M.	E.	V.	M.	E.	V.	M.	E.	V.
30																	
31	104·0, 5th	96·0, 17th	...	...	..	100·2	102.2	1·3	96·8	97·3	·5	96·6	97·0	·4			
32	103·8, day of admiss., 14th	97·4, 33rd	...	...	.	...	...		99·7	102·8	3·1	98·8	100·9	2·1	97·9	97·8	
33	105·0, day of admiss., 14th	96·6, 28th	...	...	...	...	...	...	101·7	104·0	2·3	100·4	102·4	2·0	97·7	98·5	
34	103·0, 6th	96·2, 17th	...	...	...	98·6	101·0	2·4	97·1	98·1	1·0	97·9	99·0	1·1			
35	99·0, day of admiss., 2nd	96·6, 13th	98·7	98·2	·5	97·5	98·0	·5									
36	102·6, day of admiss., 4th	Notes imperfect	100·0	101·3	1·3	...	...	...	...	...	...	...	...	...	...	...	
37	103·8, day of admiss., 6th	96·1, 13th	100·6	102·3	1·7	98·2	99·4	1·2	97·3	98·0	·7	98·1	97·7	·4	97·2	97·9	
38	102·2, 28th	Notes imperfect	...	...	...	...	...	...	...	...	...	...	..	...	...	...	
39	104·3, day of admiss., 8th	96·3, 31st	...	...	..	102·2	103·7	1·5	101·6	102·7	1·1	100·4	102·5	2·1	97·7	100	2
40	105·4, 25th	96·4, 39th	99·0	101·6	2·6	97·6	98·3	·7	98·9	100·2	1·3	102·6	104·8	2·2	99·3	102·8	3
41	103·5, 50th	93·8, 9th, hæmorrhage	...	...	...	98·6	101·5	2·9	99·4	101·9	2·5	100·4	101·3	·9	100·6	101·3	
42	104·0, day of admiss., 9th	97·6, 23rd	...	...	.	100·4	102·0	1·6	98·6	99·6	1·0	97·8	98·3	·5	98·1	98·1	
43	105·0, 22nd	97·0, 52nd	...	...	...	...	...	...	...	...	...	102·9	103·6	·7	98·7	99·4	
44	105·2, day of admiss., 14th	97·6	...	...	...	...	...	...	102·0	103·9	1·9	98·6	99·5	·9	97·8	97·9	
45	104·8, 22nd	96·6, 34th	...	...	...	100·0	104·7	4·7	100·8	101·5	·7	97·8	98·1	·3	103·3	104·4	1
46	104·6, 32nd	Doubtful, below 97·0, 40th	...	...	...	99·0	101·2	2·2	97·3	97·3	·0	97·5	98·0	·5	98·2	100·2	2
47	103·2, 17th	96·4, 27th	...	...	...	.	..		99·0	102·0	3·0	97·2	97·6	·4	97·4	97·3	
48	105·0, 10th	97·6, 20th	...	...	...	102·4	104·3	1·9	99·5	101·2	1·7	97·8	97·8	·0			
49	103·2, 14th and 20th	97·0, 28th	...	...	...	...	...	...	100·5	101·9	1·4	99·9	100·9	1·0	97·8	98·1	
50	103·0, day of admiss., 7th	97·0, 25th	...	...	...	101·7	102·4	·7	99·5	100·6	1·1	97·6	98·3	·7	97·5	98·6	1
51	104·4, day of admiss., 15th	97·6, 41st	...	...	...	...	...	...	101·7	103·0	1·3	100·3	101·8	1·5	99·1	99·9	
52	104·0, 11th	97·8, 12th	...		...	101·4	101·8	·4	...	98·0	...	...	..	...	...	...	
53	105·0, 20th	98·5, 17th	...	...	.	99·4	102·6	3·2	101·4	103·0	1·6	102·9	104·3	1·4			
54	104·4, 22nd	94·0, 29th	...	...	...	...	...	...	101·9	103·6	1·7	100·3	103·2	2·9	98·8	101·9	
55	106·4, day of admiss., 28th ?	99·8, 31st ?	...	...	...	...	...	...	...	...	...	...	...	...	101·5	103·5	
56	104·2, 40th	97·6, 56th	...	...	...	...	...	...	...	...	...	101·6	102·6	1·0	98·6	99·2	
57	105·1, 31st	97·2, 44th	...	...	...	101·1	103·0	1·9	100·6	102·4	1·8	102·7	103·7	1·0	100·6	103·4	
58	105·2, 14th	99·4, 25th	...	...	...	103·0	104·2	1·2	102·3	104·2	1·9	101·3	103·7	2·4	101·2	102·6	
59 60	Wanting.																

week, rage.		7th week, average.			8th week, average.			9th week, average.			10th week, average.			Remarks.
E.	V.	M.	E.	V.	M.	E.	V.	M.	E.	V.	M.	E.	V.	
98·0	·5													
98·0	·3													
...	...	...	...	...	...	...	...	...	...	...	...	...	...	Subsequent notes imperfect; a very mild case.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	Relapse occurred five days later, but temperature not noted.
98·2	·3	...	...	...	...	...	...	...	...	...	...	...	...	Gangrene of foot occurred in the 6th week; death followed amputation.
99·2	1·8	...	...	...	...	...	...	...	...	...	98·1	100·3	2·2	Lasting one week.
00·2	1·3	100·9	102·3	1·4	100·8	102·4	1·6	99·6	100·2	·6	98·0	98·5	·5	Further relapse in 13th week, with temp. 101·0.
97·3	1·0	98·3	98·5	·2	98 2	97·8	·4							
02·5	1·1	...	...	...	...	...	...	...	...	...	...	...	...	Died of typhus attacking him in 5th week of enteric.
97·0	·2													
98·4	·9													
99·0	1·0	97·7	97·8	·1	...	...	...	...	...	...	...	...	...	Enteric symptoms to end of 6th week.
99·4	·5	98·1	98·1	·0										
97·9	·4	98·4	98·1	·3										
...	...	...	...	...	...	...	...	...	...	...	...	...	...	Fifteen days' fever.
01·8	2·5	99·1	101·6	2·5	99·3	101·5	2·2	98·5	100·5	2·0	97·8	99·7	1·9	This patient was over twenty weeks in hospital, and had hæmorrhage and rigors several times.
03·9	1·2	...	...	...	...	...	...	...	...	...	...	...	...	Death by hæmorrhage.
01·8	1·4	101·8	103·5	1·7	98·8	101·2	2·4	98·3	98·0	·3				
99·8	1·8	...	...	...	...	...	...	...	...	...	...	...	...	Relapse later on, with fresh spots.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	Perforation.

The highest temperature registered in any of the cases was 106·8°. This was reached two days before death in a case which ended fatally by perforation, and was followed within a few hours by a fall to 97·6°. In this case the temperature (axillary) stood at 103·6° one hour before death, at 101·6° fifteen minutes after death, and at 103° one hour after death. The patient, a French bonne, was delirious when admitted, and no trustworthy dates of her illness before admission could be obtained.

The lowest temperature was 93·8°. It occurred on the ninth day of fever, and was related with severe hæmorrhage. The patient recovered.

It will be seen on a survey of the above table that the temperature reached or exceeded 106° Fahr. in 2 cases, both of which were fatal, one by perforation, the other by hæmorrhage. In one case of relapse treated by bath, however, the temperature rose one morning to 106·2°. This is not included in the list as it was a sudden irregular rise. The case, which ended in recovery, is described among the relapses. In another case of mild fever in a child of 7 months, where the total duration was only 15 days, the temperature was at 106°, when the child attended at the hospital four days before admission. In 19 cases, or nearly one-third, the temperature rose to 105°, or to between 105° and 106° Fahr. In 15 cases to 104·0° and less than 105·0°. In 51 cases to 103° and less than 104°. That is to say in 51 cases out of 60 the temperature reached 103° or upwards. In 4 fatal cases the highest temperatures were 105·0°, 105·2°, 105·3°, and 105·6° respectively. In 2 remaining fatal cases 104·3°, and 104·8° respectively.

There was great variety in the period of the illness at which the highest temperature occurred.

In the first place the temperature was higher on the day of admission than on any subsequent day in 18 cases out of the 60. This of course does not prove that the temperature had not been higher on previous days. And an influence which has been pointed out by Dr. Charles, our present and most able Medical Registrar, must be kept in view. Dr. Charles has after collection of temperatures, observed that patients almost invariably cool a little—from ·5° to 1·5°—within a few hours of their admission; the higher temperature observed at the time of admission having probably been a rise caused by the excitement and fatigue incidental to the transit from home to hospital.

Of the 18 cases in this category 8 were in the first week of fever, and their average highest temperature was 102·9°. Eight more were in the 2nd week, with an average acme of 104·29°; one on the 21st day, 105·4°; one on the 28th day, 106·4°. The last two were relapses.

Of 37 other cases in which the acme was attained after admission, 8 were in the first week, with average of 103·5°; 8 in the 2nd, with 104·55°; 6 in the 3rd, with 104·36°; 6 in the 4th, with 104·5°; and 6 in the 5th, with 104·4°. One reached it on the 40th day with, 104·2°, and one on the 50th, with 103·5.

The average of the evening temperatures was in the non-relapsing cases, and in the first attack of relapsing cases highest during the second week of the disease. And as regards the relation of morning temperatures, it is evident that the early appearance of marked remissions invariably indicates a mild attack. In several cases the evening temperature fell below that of the morning during convalescence. The course of the temperature in cases of relapse is indicated in the table, but will be more fully traced when the subject of relapse comes under notice later on.

Pulse.—A rate of 160 was recorded in three cases, all fatal, in all not long before death. The extreme rapidity of the pulse did not correspond with the highest range of the temperature. In one case 150 was noted, coinciding with a temperature of 106·2°. Recovery followed the treatment by bathing. The pulse rose to 140 or upwards in 4 cases. Three of these were severe, one, in a child, not severe. Only in one of the four did the high pulse coincide with the highest temperature. This was during a rigor. In 9 cases 130 and upwards, in 10 cases 120 and upwards were registered. There was a general relation between high pulse and high temperature. But there was not an exact correspondence. Where a high pulse—by which I understand 120 or upwards—continued for several days, the evening temperatures during that time were always high. Thus, in one instance, a pulse of 120 was maintained with rare occasional falls during 6 weeks, in association with a temperature not exceeding 104·4, but constantly near it. On the other hand, many sudden rises of the pulse were not accompanied by rise of temperature. This is of course what might be expected, many circumstances of a temporary duration being capable of sending up the pulse, while they do not tend to raise the temperature. Simple quickness of pulse does not produce, nor is of necessity associated with a high temperature. Again, in a number of cases where both temperature and pulse were high during the progress of the case, the highest pulse and the highest temperatures occurred at different dates, often many days apart, the high pulse sometimes preceding and sometimes following the high temperature. In several cases where the temperature ran high the pulse was only moderately affected. For instance, in one case where a temperature of 105° was reached, and where the average evening temperature of the 4th week was 103·2°, the pulse remained at 96 except on one occasion, when it rose to 110 without any change in the temperature. Finally, in 18 cases of enteric fever, where the temperature reached 105° or upwards, the average highest pulse was as near as possible 131. Of these 5 were fatal cases, including the 3 already alluded to, in which the pulse reached 160. Excluding the fatal cases, the average highest pulse was 123. In 31 cases, where the temperature was less than 105°, the average highest temperature being 103·5°, the average highest pulse was 105. These cases include two deaths, but in one of them the death was due to subsequent typhus, attacking the patient when fairly convalescent from typhoid. The other was a case in which the patient died after amputation for gangrene of the foot. Although a temperature of 104·3° was not exceeded, the pulse ranged at 126 for some time, and when gangrene set in rose to 136.

The general results here agree with what is generally taught with regard to the pulse in enteric fever; that, other things being equal, a pulse of 125 to 130 gives rise to anxiety, and that a pulse decidedly above 130 means danger.

Diarrhœa.—The epidemic of the last autumn and winter, so far as it was illustrated in this hospital, was remarkable for the slight severity of the diarrhœa in most of the cases. More than this, diarrhœa is definitely recorded to have been absent in 22 cases out of 57, and was in nearly all these replaced by constipation requiring the use of enemata or laxatives. The remaining 35 cases are classified in three groups, not severe, severe, and very severe.

The term severe is used where 4 or more motions have been passed daily, very severe where the number has exceeded 7 during several days. Twenty-one (21) cases are placed under the head of "not severe," 12 under "severe," 2 under "very severe," both of which were fatal. Of the "not severe" 4 cases followed the use of laxatives, eight so-called "antibilious" pills being taken by one patient; and in 5 cases diarrhœa was absent during the primary attack, but was present with more or less severity in a relapse. If diarrhœa was not generally a marked symptom, constipation was common, was troublesome, and played an active part, as it appears to me, in the production of recrudescence, the measures used to relieve it, or the resumption of action after inertia being frequently followed by return of all the symptoms of enteric fever—by relapse or recrudescence.

Constipation, requiring the use of laxative medicines or enemata, occurred in no less than 38 of the cases, sometimes from the beginning to the end, in a few instances before diarrhœa, in many after the cessation of diarrhœa.

Vomiting is noted as having been a prominent symptom at the access of fever in 24 cases. In two cases it was so severe during the course of the fever as to be a serious complication, and in one case severe vomiting introduced the symptoms of perforation, if indeed it was not the actual cause of the accident.

Abdominal conditions.—Marked distension of the abdomen existed in 18 cases, amounting in 5 of them to tympanites; general pain and tenderness in 34, the intensity varying, and for the most part not great. In 24 cases there was pain or tenderness in the right iliac fossa, in 5 in the epigastrium. "Gurgling" on pressure in the right iliac fossa was noted in 5 cases without the accompaniment of pain or tenderness. There were the general signs of acute peritonitis in 4 cases.

Note of the condition of the spleen was made in 30 cases. In 18 it was enlarged, in the remainder not. In 5 cases there was distinct tenderness over the spleen as apart from other organs.

Tongue.—The tongue is described as having been dry and brown in 14 cases. But this condition was constant for any long period only in two cases, and here in conjunction with complications—retention of urine and pleurisy. In the rest the condition marked the height of fever, and is stated more than once to have passed away after the use of a bath. The furred whitish or yellow surface, with red tip and edges, is noted in 30 cases. In several of these the centre is described as becoming dry and cracked, and either brownish or unnaturally red. The "glazed" tongue is noted in a few severe cases, and three times tremor is mentioned. Distinction is to be drawn between this and the slight tremor coming on late in the fever and due to weakness, where the trembling has a wavy character. This may or may not have occurred in many cases. The tremor here spoken of is a rapid irregular movement of the whole organ, giving the appearance of a state of terror, and very much resembling the tremor of the tongue in delirium tremens. Such a tremor attended the earlier stage of the three cases quoted, and was followed in all by symptoms indicating great depth of ulceration, marked pain, tenderness, diarrhœa, or hæmorrhage, and by a strong tendency to relapse. In a few cases the tongue was little changed, merely becoming large and soft, with a thin whitish or yellowish coating. In one case, of great severity, but ending in recovery, the tongue became aphthous towards the end of the fever. In another case, where very severe diarrhœa preceded death, the tongue, previously brown and dry, became red and raw on the setting in of the diarrhœa, and continued so till the end.

Respiration.—The rate of respiration was very generally quickened. Rarely noted below 24, it was more often between 24 and 30 in the minute, and ran up to 40, 44, and 48 in cases of high fever or severe local affection of the respiratory organs. It is worthy of note that in one case, where the pulse was at 96 throughout, the respiration ranged from 24 to 30 without any obvious cause for such rapidity. In another case the respiration was raised from 24 to 32 by a bath, used to bring down the heat of the body, which acted favorably in every other respect.

Catarrh, demonstrated to exist by such physical signs as rhonchi, wheezings, moist crepitations, râles, &c., without consolidation of the texture of the lung, occurred in 28 cases. Pneumonic affection of the base of one or both lungs was observed in 12 cases, the more severe of which, as passing beyond the limit of the lung affection which belongs to enteric fever, are included among the complications. Pleurisy, too, will be found under that head, one case only being noted here in which concurrently with a little pneumonia fluid was effused into the right pleura.

Hæmoptysis, again, is noted here only so far as it was symptomatic of catarrhal or pneumonic congestion. This was noted in 4 cases. More severe cases of hæmoptysis are passed on to the complications.

Urine.—No connected notes of the quantity or chemistry of the urine in any of the cases exist. The urine was generally examined on the day of admission, and subsequently only when circumstances drew attention to it. At admission it was usually of high specific gravity, reaching as high as 1038, without the presence of sugar. In 13 cases out of 43 in which this point is noted albumen was present, but in six of these the quantity is spoken of as "a trace." I may observe that the urine in one or two cases in which it was examined specially for the purpose yielded a very strong indican reaction, a circumstance which agrees with observations made by Senator and others, that in fevers with intestinal complications there is a large excess of indican present in the urine.

Nervous System.—Delirium is distinctly stated to have been altogether absent in 37 cases. Its existence is noted in 16; as "slight at night" in 4, as a "wandering or rambling" in 2, as drowsy delirium in 3, as a noisy delirium in 1, and as an active or somewhat violent delirium in 6, four of which were fatal cases, the violence appearing near the end. The only other nervous symptom recorded is ptosis of the right eye, with dilatation of both pupils, passing off completely after a few days.

Complications.—This subject has, in the study of enteric fever, a great interest. There is no malady, so far as I know, which has so remarkable a property of proving the weakness of its victims. Whether it be the long duration of the process, or the indifferent and feebly specific nature of the infection, or both; whether, that is to say, a long-lasting elevation of temperature blows already existing embers into a blaze, or whether a less imperious specificity lets other processes assert themselves instead of filling the whole field itself, may be a fair question for searching out and answering. But that there is a difference in the whole scope of the complications of enteric as compared with those of typhus or scarlatina appears to me quite certain. If we put aside the splenic enlargement, the bronchial catarrh, and the abdominal lesions incidental to the characteristic ulcerations, we find outside them a large group of complicating lesions, illustrating in one way and another the constitutional weaknesses of a community. In the limited range of our 60 cases abundant instances may be found; and the classification of complications beyond those which belong to the proper natural history of the disease may be made accordingly. First, we may establish a group in which the complications are accidents of the disease, and not related to other diseases, accidentia with very little of a proprium about them, except so far as they relate to weakness and the general process of fever. Second, a group in which the accidentia have a proprium, and are related to processes involved in the special febrile process. Third, a group of accidents in the second degree, not propria in any sense of the disease, but propria of the individuals—accidentia of the fever, propria of its subject.

In the first group we find

1. Phlebitis, one case. Veins of leg.
2. Gangrene of foot, requiring amputation.
3. Pyæmia, one case.
4. Bedsores, four cases.
5. Retention of urine, six cases, five in males, one in female.
6. Incontinence of urine, one case.

7 (of doubtful position). Tonsillitis, six cases; two simple; one simple, with affection of lymphatic glands; one ulcerative, involving soft palate and associated with glandular inflammation; two exudative, involving soft palate and pharynx, with much glandular inflammation.

These are put "doubtfully" in this position, because on the one hand it is to be remembered that the tonsils have much physiological relation with Peyer's patches; and against this that the throat is easily affected by cold or contagium in weakened persons. On the whole I should be sorry to judge from one epidemic. But in passing I should like to urge the interest which attaches to tonsillitis in relation to rheumatic, scarlatinal, and enteric morbid processes. It is to my mind certain that in families having acute rheumatic tendencies there is a strong proclivity to tonsillar inflammation, particularly of the ulcerative and exudative kinds. And in such people, just as a day of hard work, of continued over-exertion, or excitement will tend to bring on rheumatic affection of joints, so the same causes will produce quinsy. It is the usual custom when a quinsy comes on to infer or assume the occurrence of a chill. But on careful investigation of numerous cases I have been able to eliminate this cause, and so far to throw the real cause further back, to over-exertion and over-heating of the body. It is again certain to my mind that exposure to sewer gas, and like miasmata—to the sort of atmospheric impurity in which enteric fever is generally held to have its origin—frequently produces the same sort of ulcerative or exudative tonsillitis. The circumstances, indeed, often suggest to me that the patient suffering from the tonsillar affection has had either a smaller dose of the enteric poison than is sufficient to produce the true enteric fever, or a dose of poison allied in nature, but slightly different in such a way as to come into relation with a different group of homologous glands. The speculations of my colleague Dr. Harley upon the relation between scarlatina and enteric fever bear upon the affinities here discussed. And if the histories of families are followed out, the existence of groups of persons closely related to each other by descent, and having in common a strong attraction for certain morbid processes of the kind here discussed will be amply suggested. We find in families a proclivity to enlargement of tonsils, to tonsillitis of all three kinds, to acute rheumatism, to feverish attacks without complication, to scarlatina, and to enteric fever—all in severe forms. I have many notes of such family histories, and fresh instances are of constant occurrence. Here ends a large digression, which I could hardly avoid making in explanation of the doubt which possesses me as to the proper position of tonsillitis in the categories which I have endeavoured to establish. Perhaps in these considerations may be found the germs of a future paper.

In the second group may be included :

1. Pneumonia, six cases, with, in one, collapse of lung. Clearly extensions of a process belonging to enteric fever.

2. Pleurisy, three cases. Probably related to the foregoing, though possibly in one case rheumatic, and if so belonging to the next group.

3. Hæmoptysis, marked in two cases.
4. Hæmatemesis, in two cases.
5. Epistaxis, in four cases.
6. Hæmorrhage from the bowels, in five cases.
7. Peritonitis, four cases.
8. Abdominal abscess, one case.
9. Perforation, three cases.

In the last group

1. Œdema of ankles, occurring suddenly with rise of temperature, but without any signs of renal complication—rheumatic?
2. Endocarditis, in two cases.
3. Pericarditis, two cases, one with inflamed knee, one with peritonitis.
4. Consolidation of apex of lungs, two cases.
5. Otorrhœa, one case.
6. Periostitis of tibia and fibula, one case.

In one case where there was a history of free living, there was much tremor of muscles, simulating delirium tremens in the outset. The evil augury of the very tremulous tongue has already been alluded to. It is worth noting also that, in the case of patients of intemperate habits, it is not uncommon for the outset of enteric fever to resemble an attack of delirium tremens; in fact, it may be said that there is an early stage of this kind. Enteric fever thus introduced is almost always fatal, and almost always by perforation. So also acute rheumatism with its cardiac mischief may start up in the early stages of enteric, though rarely to continue; and tubercular deposits may be quickened into activity, or the tendency to deposit quickened, or syphilitic mischief may be roused from a dormant state.

Treatment.—A special chapter following this will be devoted to the consideration of the use of baths, packs, and spongings, in the treatment of high fever. Here, under the head of treatment, the other remedial measures applied in the 60 cases will be analysed.

A general review of the cases shows that no specific treatment has been attempted. A very large proportion of the cases have been treated purely expectantly; in a certain proportion effervescing saline medicines; in a small proportion the mineral acids have been used. This last is indeed the nearest approach to specific treatment that has been made, excepting that in one instance the salicylate of soda was given late in the disease. In my opinion it is a rational and useful treatment, based upon the undoubted fact that the mineral acids oppose putrefactive and disintegrative processes. Aconite and acetate of ammonia were used, apparently as febrifuges, in one or two cases.

Among the symptoms which in the expectant treatment had to be met, diarrhœa stands out as the most important. The means used for its control have been various, including opium, in form of pill, extract, tincture, and enema; morphia in suppository, Dover's powder, catechu, kino, and acetate of lead.

The extent to which treatment should be opposed to diarrhœa is a subject upon which much diversity of opinion exists. To all appearance a moderate diarrhœa, with not more than three stools a day is not at all unfavorable, and may be salutary. And when not passing these limits diarrhœa, I submit, should not be the subject of special treatment. The constipation which almost invariably follows the checking of such diarrhœa has more than compensating difficulties and dangers of its own.

When, however, the diarrhœa becomes more profuse, or, what is perhaps more important, the movements of the alimentary canal and the emptying of the rectum become more frequent, new dangers are introduced. The exhaustion produced by the often repeated passage of irritant matters over the surface of the rectum is one element of danger; the inflammatory excitement set up around the neighbourhood of the ulcerated patches is another. The choice of the moment at which interference should take place is not always easy, but must be determined by such considerations as the effects of the diarrhœa upon the general strength, by the occurrence of faintness, nausea or vomiting before or after the stools, by the increase of pain or tenderness in the abdomen, by the presence of blood in the evacuations. As regards the measures to be taken I have no hesitation in expressing a strong preference for remedies applied per anum. The morphia suppositories of the Pharmacopœia, or starch and opium enemata, meet the case better than any other remedies I know of. These have been used a good deal in the treatment of the diarrhœa in the present cases. But no doubt they are not always applicable or convenient, or even otherwise suitable, and among remedies for this symptom used in these cases are found opium administered by the mouth as pill, extract, or tincture, its combination with ipecacuanha, Dover's powder, catechu, kino, and acetate of lead.

Again, in hæmorrhage it appears to me that it is easy to do too much. In many of the really dangerous hæmorrhages the actual bleeding is over when its symptoms are recognised. Treatment here should consist in mitigating the effects upon the general system, and in the endeavour to remove the conditions which have produced it and may do so again. It is not to be forgotten that a hæmorrhage, dangerous though it be for the moment, is often distinctly salutary, as, for instance, where there is general plethora, or where there is great local hyperæmia. One most important object for our constant view is that the treatment be not such as may have any remote influences of an injurious character. Now, I am strongly of opinion that whatever benefit may at the moment of bleeding be gained by the free use of astringents is often more than neutralised by subsequent constipation and involved congestion of the inflamed parts. In the main, therefore, the free use of opium, the application of cold —best by the medium of the ice-bag—to the right lower abdomen, and the administration of stimulants while faintness or extreme exhaustion continue, are the remedial measures which most commend themselves to me. The use of subcutaneous injections of ergotin, or the administration of small doses of turpentine, appears to have been beneficial in more protracted cases, without being open to the objections before urged. But gallic acid, tannic acid, and acetate of lead are remedies which I should put aside as more hurtful than healing.

In cases where perforation has occurred or appears imminent, or where there are sudden symptoms of acute peritonitis, the free use of opium and the constant application of the ice-bag have been chiefly resorted to. The opium in such cases is borne well, and the ice-bag may be used for days together.

In tympanitis with or without intense pain the turpentine stupe has been chiefly used.

And, again, in sleeplessness and restlessness opium has been the drug usually resorted to. Chloral was used only once.

In the occurrence of severe vomiting of opium, bismuth subnitrate, nux vomica, ipecacuanha, hydrocyanic acid, were used, sometimes singly, sometimes in succession.

The use of stimulants is a part of the treatment about which a few words must be said.

It may be stated broadly that the simple stimulating treatment of fever was not adopted in any case; that the use of wine, brandy, or other alcoholic drinks was determined in all cases where they were used by the weakness of the patient or the empty state of the arteries; that for the most part wine was not given till the disease had passed its acme; and that in a very considerable number of cases no alcohol was administered during the stay of patients in hospital.

The following numbers speak for themselves:—Twenty-four (24) patients received no stimulants at all; six (6) only a small quantity during convalescence; eight (8) not any till after the tenth day of admission; twenty-two (22) received them within the first ten days of stay in hospital, or while the fever was in activity, but very few, indeed, received them till after the end of the first week of illness. These results, I confess, have rather taken me by surprise, and illustrate well the extent to which expectant treatment of enteric fever has been carried in St. Thomas's Hospital.

The quantity of stimulant varied from a glass of wine or a glass of beer up to 16 oz. of wine daily in one case, and 8 oz. of brandy in another.

In the matter of diet, the almost invariable prescription was milk and beef tea, the former given in large quantities in the late part of the fever and early part of convalescence. Eggs were given in early convalescence, and then fish; but the use of bread was usually deferred till the motions had been for many days solid. Even then it appeared that the use of bread was followed by rise of temperature, and in one or two cases relapses directly coincided with the resumption of this article of diet. Rightly or wrongly there is a strong belief among the sisters of the Hospital that bread is the most dangerous article of diet for patients in convalescence after enteric fever.

Relapse and Recrudescence.

The 15 cases of which, under the above heading, abstracts are given at the end of these remarks were cases in which, after subsidence, more or less complete, of the fever and its attendant symptoms, a recurrence of high temperature of some duration occurred. It may be a question whether in Case 3 the short duration of the recurrence, or in Case 13 the symptoms attending the recurrence quite justify the term relapse, but they are included as contributory to illustration, inasmuch as the question of recrudescence is also here discussed.

Putting aside for the present Case 9, of which the notes were lost, the primary attack was severe or very severe in 8 out of the 14 remaining cases. In 4 of these the relapse was more severe, in 4 less severe than the primary attack. Of the 6 milder primary attacks, 4 were followed by relapses of great severity, in one the primary attack and relapse were of about equal severity, in one the relapse was light, lasting only three days.

The subsidence of the fever after the primary attack was not always to the same extent. It was complete in 7 cases out of the 15. In the remainder it was partial, 2 cases being remarkable for an early abortion followed by severe relapse. The amount of subsidence bore no relation to the severity of either primary or secondary fever.

The relapses varied much in their completeness; but six of them were exactly like primary attacks in their beginning, course, and end. In five of them a second eruption of typhoid spots appeared, and was in all but one of long duration, lasting in one fourteen days, until all other symptoms had abated. The occurrence in Case 15 of a third relapse, attended with typical course of temperature and with a third eruption of spots lasting ten days, is most interesting. All the cases ended in recovery.

Reviewing the whole 15 it may be safely asserted that 9 of them were cases of undoubted relapse, that 1 was doubtful, that the remainder were cases of recrudescence, all of them severe and 2 of them of great intensity. Repeated recrudescence also followed one of the cases of true relapse.

The proportion of true relapses to the total of cases was unusually high, being 15 per cent. The numbers recorded in the observations of various authors vary from 3 per cent. to 10 per cent. To quote Dr. Murchison :—"During seven years (1862-8) relapses were observed in 80 out of 2591 cases in the London Fever Hospital, or in 3 per cent. Griesinger noted them in 6 per cent. of 463 cases at Zurich; Human in 8 per cent. of 548 at Leipzig; and Maclagan in 13 (10 per cent.) of 128 cases at Dundee," 'Treatise on Continued Fevers,' 2nd edition, 1873, p. 551. The occurrence of a third attack or second relapse as in Case 15 is very rare. Dr. Murchison on the same page speaks of only two as having occurred in his own large practice.

The cause of a true relapse is probably to be found in a renewal of the process of ulceration in fresh patches. At all events the weight of opinion is in this direction; but the causes that lead to this renewal are not so readily detected, nor are they the subject of anything like a general agreement. In connection with this matter the characters of the epidemic may be studied. It must be remembered that there accompanied this unusual tendency to relapse a remarkable tendency to constipation rather than to diarrhœa, and a general want of prominence in the abdominal symptoms from a clinical aspect. Dr. Maclagan has endeavoured to account for relapse by suggesting an inoculation of fresh glands and has asserted that in cases of relapse constipation has occurred by which time, and therefore opportunity, would be given for the second infection. But to this it may be objected that in primary attacks the lowest patches of Peyer, those nearest the ileo-cæcal valve are the most advanced in the morbid process, and that the highest affected, those further from the valve are the least advanced. And in fatal cases of relapse the fresh lesions are in my more limited experience, which is to the same effect as Dr. Murchison's, situated higher up the intestine than the old.

In the present series of cases I am inclined to associate the relapses, at least in part, with the tendency to constipation. This, again, is a condition to be explained. Sir William Jenner has expressed an opinion that diarrhœa is not common in enteric fever unless there be much affection of the solitary glands in the large intestine as well as of the patches of Peyer.

All that one sees in the cases under notice is confirmatory of this opinion. Now constipation almost inevitably forms the alternative of diarrhœa in people confined to bed, and on a scanty diet. It is to be noted that in the fatal cases submitted to post-mortem examination the small intestine almost always contained hard or, at least, solid masses of clayey substance and angular form resting on the ulcers, and apparently chargeable in some instances with the perforation which caused death It is, therefore, a plausible solution of the relapses that they were caused by a fresh poisoning of the system consequent on the retention of the infectious matter in the bowel in contact with raw surfaces. To accept this, however, is, as Dr. Murchison says, to accept another argument against the specificity of enteric fever.

Is it possible to find another solution either in the necessity for aperients, and consequent irritation of the bowels, or in the excitement necessarily set up when the bowel after long quiescence contracts on the accumulated fæces, and denuding the surfaces beneath, sends lump after lump of solid matter over a long series of fresh raw surfaces? Is it possible that without further infection this may set up a process of irritation, causing a fresh outbreak of inflammatory action along the line of patches and determining ulceration in follicles already infarcted, but not sufficiently to cause sloughing? It is noteworthy that in seven cases the relapse followed immediately on the use of enemata or castor oil for the relief of constipation. Such an explanation as this appears to me to be consistent with the early overlapping relapse occurring in some abortive cases before the sloughing would be accomplished, a slight and imperfect explosion being converted into a decisive one by fresh irritation of a non-specific kind. Tonsillitis may be cited as showing some parallel phenomena. Severe tonsillitis with ulceration of the surface, and lymphatic infarction of the follicles leading to suppuration, is as my observation goes most commonly produced by poisoning of the system. It is a morbid phenomenon of constant occurrence in houses and localities where the conditions favorable to the spread of typhoid exist; and again in a multitude of instances it follows chill, but still preceded by excessive and prolonged, or in some way unusual, muscular exertion, particularly in hot weather;

when the result of the chill is to prevent the excretion of the results of the exertion and heat by the ordinary channels; when the system is self poisoned. Again, the process occurs under the same circumstances of heat and exertion without the chill, when the system appears to be poisoned by an excess of excretory matter beyond the purgative power of the proper channels. In such cases relapses or recrudescences are rather the rule than the exception, successive suppurative explosions occurring after intervals of almost complete resolution of the local morbid activity. If the parallel be admitted the idea of the specificity of enteric fever must be still further surrendered, but at the same time a type of morbid process lying between this imperfectly specific disease and non-specific diseases is introduced. The relation is of some importance in its bearing upon the hypothesis that the various morbid poisons of specific kind have their origin as "sports" of germs existing around and possibly within us.

While the speculations raised by these cases as to the nature of morbid processes cannot be decisively judged, certain points in treatment have to be considered. They are questions, 1st, of the treatment of diarrhœa and constipation; 2nd, of diet. I have already expressed the opinion that to check the diarrhœa of enteric fever unless the frequent repetition of stools obviously produces exhaustion is unwise. But I have of late had reason to doubt whether a practice of non-intervention in the case of constipation may not be equally unwise. From a fear of producing diarrhœa or setting up irritation, I have hitherto followed the practice commended by many authors of note of not being hasty to remove constipation. It has been my rule to allow at least six days to pass without stools before using aperients; and then I have had recourse to enemas, or, when they have failed to produce effect, to castor oil. That relapse has appeared to follow such practice and that recrudescence has certainly followed in several cases is certain. That the examination of the bowels in fatal cases points to danger arising from the formation of lumps of fæces in the rectum must be acknowledged. Hence arise certain critical inquiries. First, should constipation be allowed to continue long enough to give opportunity for the formation of lumps of fæces in the small intestine? Second, by what remedial measures is constipation to be obviated or relieved? Most probably the accumulations begin in the affected bowel before constipation becomes a symptom. The large intestine may be slowly expelling its contents, while the muscular torpor of local inflammation may be allowing solid deposits to occur in the small intestine. But if active peristalsis be set up in the large intestine, as may be often effected by stimulation of the rectum and anus, action may be expected to be set up in the small intestine also. My conclusion is that constipation should not be allowed to continue for more than three days without some treatment. In many cases a simple enema suffices to set going all the activity of peristalsis in large and small intestine that is necessary. When this does not suffice castor oil in small doses, or sulphate of magnesia with small quantity of dilute sulphuric acid, are the remedies which seem most appropriate.

As regards diet it is probable that an early recourse to starchy food of the solid kind is injurious. By this is understood bread, or the slightly swollen starch in puddings of various kinds, as opposed to starch in the fully swollen or mucilaginous state. Bread in particular given early in the disease appears to be decidedly incendiary. The administration of beef tea and other meat juices, with a moderate proportion of milk, followed in later stages by the addition of egg-foods, with starch only in the mucilaginous form, seems to me the safest kind of dieting. The plan agrees with the teaching of some of the earliest observers of and writers on this disease, and I only mention it because the experience of many officers of the hospital as to the injurious influence of the solid starches when given before convalescence is clear on this point and unmistakable.

Abstracts of cases of Relapse and Recrudescence in Enteric Fever.

1. S. C—, æt. 24, female, married, admitted to Alice Ward under Dr. Bristowe 29th August, 1877.

The primary fever had been apparently in existence for three weeks at the time of admission. No eruption was observed, a fact which increases the probability of the above estimate. The highest temperature (105·4°) was noted on the day of admission, and thence the fever gradually declined till the end of the third week after admission, when it became normal. The primary fever thus lasted six weeks, without much diarrhœa or noticeable complication, but with most characteristic temperature curve. On the 26th September (seventh week) the temperature suddenly rose, reaching, two days after, 103°, and remained high in the evening with marked morning remissions for two weeks.

The high temperature was not accompanied by diarrhœa or increase of pain, but after the bowels, previously confined, had been opened by enema. There had been no change in diet. After the subsidence of the second fever there occurred a little diarrhœa. The patient was at that time allowed to be up for a few hours daily, and it was not necessary to confine her to bed. The diarrhœa was checked by compound powder of kino.

2. A. W—, æt. 20, female, married, admitted to Alice Ward, under Dr. Ord, 18th September, 1877.

Ill nine days before admission. Eruption appeared the day after admission and lasted ten days. The highest temperature on September 20th (eleventh day) 105·6°. Moderately severe diarrhœa (one to three stools a day) began on 20th and lasted thirteen days. Fever subsided in third week of stay, about twenty-sixth day. The graduated bath was used on the second day after admission, and again two days later, with the effect of subduing the high temperature. The tongue it may be noted was tremulous on the 20th.

The bowels were not relieved from October 2nd to October 10th, when a simple enema was ordered. The action of this was followed by diarrhœa and increase of temperature lasting a fortnight. There were no spots, and the heat was not so great as in the first attack. No error in diet or unusual exertion is known to have occurred.

3. A. W. H—, æt. 31, male, clothier, admitted to Charity Ward, under Dr. Ord, 2nd October, 1877.

This patient was admitted on the eleventh day of illness and passed through a characteristic, but not severe, primary attack. The eruption was slight, there was no diarrhœa, but at the time of admission the patient was in a state of drowsy delirium.

The temperature fell to normal in the third week of admission, but in the fifth (sixth of illness) rose suddenly in the evening to 101°, and did the same for three days in succession, with sharp rigors, then it dropped as suddenly to 96·9°, and gradually returned to normal level. This rise, which may be characterised as a partial relapse or recrudescence, followed directly the use of an enema, and, with an interval of two days, the addition of suet pudding to the fever diet. It must be remarked, however, that enemata had been used twice before at intervals of seven days.

4. E. S—, æt. 22, female, married; admitted to Alice Ward, under Dr. Ord, 2nd October, 1877.

Ill six days before admission. Eruption present on day of admission, lasting a week. The primary attack was very severe, the temperature rising to 105·8° on the day of admission; and, although there was not much diarrhœa, the abdomen was distended and painful. The tongue was furred, red at the edges, and tremulous, and the urine scanty and of high specific gravity—1030.

After the use of baths on admission the fever was checked, and in the third week of the fever the temperature had fallen considerably and approached the normal standard, but in the fourth week there was a rise of morning and evening temperatures, giving an average of 103·3° for evenings. Fresh spots appeared on the 23rd October—end of fourth week, or five days after fresh rise—and continued to appear till the 29th. Pain in the abdomen also returned. The salicylate of soda was prescribed in moderate doses when the rise occurred, and some Dover's powder was added two days later. In this case no cause external to the patient was known to account for the relapse. Neither aperient, enema, nor change of diet had been ordered, and it was not till the 2nd of November when, the second attack had completely passed away, that even bread and butter was allowed.

5. W. D—, æt. 15, male, printer, admitted to Charity Ward, under Dr. Bristowe, 4th October, 1877.

The patient had been ill fourteen days, and at the time of admission his temperature was high, giving an average in the week of 104·1° for the evenings, with but small remissions. There was an appearance of eruption on one day only, the fourth after admission. The spleen was much enlarged and the abdomen tender, but there was no diarrhœa. The next week saw the fever and all its attendant symptoms much reduced. But in the fourth week—sixth of the disease—came a rise of the temperature to a height above that of the first week, and an exacerbation of all symptoms, save of the abdominal pain. On one evening 105·4° was registered, and the graduated bath was used, reducing the temperature to 99°, though it subsequently rose to 104·0°. A gradual fall followed and the fever passed away about November 5th, or the forty-sixth day from its commencement. Neither purge nor change of diet accounted for this severe relapse following partial subsidence of fever.

6. J. B. S—, æt. 19, male, waiter, admitted to Charity Ward, under Dr. Bristowe, 15th October, 1877.

Ill six days before. Eruption on admission, lasting ten days. Diarrhœa for five days after admission. Spleen enlarged and tender. Temperature high, reaching 105·5° on third day of sojourn, ninth of fever, and 106.2° the next morning, with a pulse of 150 to the minute. Three baths were given on that day, and one on the next, after which the temperature came down, and became normal in the third week of sojourn (fourth of disease). Then in the fourth week, beginning on the 7th November, the temperature rebounded by successive steps to 105·1° on the 9th November and remained high during the next sixteen or seventeen days. Eruption appeared on the twenty-seventh day of the relapse, and lasted fourteen days. The diarrhœa of the relapse was not severe, but the abdominal pain and tenderness were more marked than in the primary attack. Relapse not accounted for by diet or treatment.

7. J. P—, æt. 21, male, labourer, admitted to Charity Ward, under Dr. Ord, 16th October, 1877.

Ill seven days. Eruption present on admission, but not next day. Temperature persistent at 104° of evening, with little remission in first week. Splenic enlargement, abdominal tenderness (right iliac fossa), with gurgling. In relation to this the surface temperature of the abdomen was compared in the two iliac fossæ. The temperature on the right side rose in five minutes to 98°, while on the left it rose to that height only in fifteen minutes. Ultimately the same temperature of 98° was obtained on both sides, the axillary temperature being at the time 103·4°. No diarrhœa.

In the second week (third of fever) the temperature fell, but near the end of third week (fourth of fever) it rose till on the 7th November it reached 105·2°. Spots appeared on the 4th November, the day of the new rise, in association with rigors, and again on the 6th. The abdominal distress became more severe, but there was still no diarrhœa. The distension of the abdomen was treated by turpentine stupes, the more intense subsequent pain and tenderness of the full relapse by the ice-bag.

The relapse was not accounted for by treatment or diet.

8. C. C—, æt. 15, male, baker, admitted to Arthur Ward on the 24th October, 1877, under Dr. Murchison.

Ill fourteen days before admission. Eruption evidently just ending, a few spots being found on the day of admission and two days following. No diarrhœa; abdominal symptoms mild, spleen not enlarged. The temperature was not high in the first week (third of disease); average 99·1° in evening, with average remissions of 1·7°. In the next week it was subnormal, 97·6°, both morning and evening. In the fourth week (or sixth of disease) the fever returned, and on the 9th the highest temperature, 102·9° was, reached. This occurred after the administration of castor oil and was attended by perspiration, dry tongue, and diarrhœa, but no spots. Subsidence took place in the fifth week (seventh of disease), and in the two weeks following the temperature was subnormal, becoming normal in the seventh week (ninth of disease). In this protracted though never severe case the relapse was attended with more fever than was observed in the first attack, but as the patient had been ill fourteen days before admission the acme had of course passed when he came under observation. The relapse was characteristic in all points save the eruption, and it coincided with the use of castor oil to remove constipation, the temperature rising with the action of the bowels.

9. J. J. H—, æt. 8, male, schoolboy, admitted to Job Ward, under Dr. Stone, 31st October, 1877.

Ill ten days before. Diarrhœa, but no eruption, at admission. Relapse on 22nd November (thirty-second day of illness), following the use of enema. Notes partly lost.

10. H. J—, æt. 11, male, schoolboy, admitted to Arthur Ward, under Dr. Murchison, October 22nd, 1877.

Ill three days before. There was no eruption at any time, and the bowels were mostly confined; the abdominal pain, tenderness, and tension, were considerable, and the splenic enlargement marked.

After a fall at the end of the second week of the fever the temperature rose in the third week, and became very high—105·4°—in the fourth, after which a very gradual decline took place, and it was not till the ninth week that convalescence could be said to have commenced. This case was, like No. 5, marked by a sort of abortion of the primary fever at the end of the second or beginning of the third week, and by a subsequent relapse of great severity. No conditions external to the patient existed to explain this.

11. E. M—, æt. 52, female, housekeeper, admitted to Alice Ward, under Dr. Ord, 16th October, 1877.

Ill seven days before admission. Eruption present at admission and on two days subsequent. The beginning of the attack was severe. Diarrhœa, vomiting, and delirium. The abdomen was distended and tender. Enlargement of the spleen was not detected, but as the patient was fat and the bowel distended there is no proof that enlargement did not exist.

During the first two weeks of sojourn (second and third weeks of disease) the temperature was high. On the second day large hæmorrhage occurred, with a sudden fall of 8·4°, namely, from 102·2° to 93·8°. Again on the seventh day with a less decided fall. The course of the temperature, otherwise, was of the typhoid type, and gradually fell till in the sixth week of fever it was nearly normal. In the seventh week a relapse occurred, with increase of diarrhœa and severe and persistent vomiting, but no eruption. During the next six weeks the temperature fell several times to normal, but rose again for days together, always with increase of diarrhœa. It was evident that the extent of ulceration in the intestines was very large, that the patient's power of recovery was feeble, and that healing was slow and subject to frequent arrest or reversal.

The ice-bag was used freely in this case. The diarrhœa was treated with opium and gallic acid, the vomiting with several remedies, of which small and frequently repeated doses of nux vomica and ipecacuanha were the most successful. Constipation occurred between the attack and relapse, and was treated by Enema Olei Olivæ. The relapse occurred in connection with renewal of action after one of the enemata.

12. C. K—, æt. 25, male, labourer, admitted to Job Ward, under Dr. Bristowe, 17th December, 1877.

Ill seven days before. The temperature was high in the first week (second of disease) and was low during the next fortnight. The fall was not, however, accompanied by disappearance of the characteristic symptoms, and in the fifth week (sixth of disease) rose suddenly to 104·6°, and remained high for three days. Diarrhœa accompanied this rise, and on its being checked by opium the temperature fell again. The relapse was short but of great intensity, the rate of the pulse being noted to have been 140 in the minute on the second day. The relapse is not explained by treatment or diet.

13. L. H—, æt. 40, widow, admitted to Mary Ward, under Dr. Murchison, 16th October, 1877.

The record of this case is most accurately kept and of great length, the case having been both complicated and protracted.

Ill fourteen days before admission. Eruption on the day of admission and two days following. Diarrhœa of moderate severity during first week (third of disease); splenic dulness increased; temperature somewhat high; 104·2° at admission; average of week—evening 103·6°, morning 101·9°. Hæmorrhage from the intestines, foretold by a rapid fall, and followed by a rise to 104·4°, occurred in the second week (fourth of disease). The bleeding was treated by opium, turpentine, and tannic acid, with the use of the ice-bag. The temperature continued high in the evening during the fifth week of the disease, but the morning remissions were very large (from 103·3° on the 30th to 94° on 31st), and the symptoms of abdominal abscess and peritonitis appeared. Rigors, which began with the fall on the 31st, went on till the 9th November, when another great remission occurred (104° to 98·8°); they were then absent for a few days, but recurred on the 18th (seventh week) and 22nd (eighth week), with rise of temperature to 104·3°.

On the 23rd the morning temperature was 101·0°, the evening 102·0°, and on the next day normal limits were resumed. Rigors again occurred on the 29th November and 2nd December, but in the tenth week the enteric fever seemed to be at an end. Pericarditis and inflammation in the groin and thigh came, however, as sequelæ, and the patient could not be regarded as convalescent till the seventeenth week.

It can hardly be said, indeed, that this case was one of relapse, but the protraction and the variety of complications and fluctuations of temperature make it worthy to be recorded at even so short a length as is here possible. The abdominal abscess which is presumed to have existed did not open externally, and at the time of discharge of the patient there appears to have been neither tumour nor tenderness.

14. E. S—, æt. 20, female, single, servant, admitted to Lydia Ward, under Dr. Stone, 23rd January, 1878.

Ill three weeks before. No rash on admission. No diarrhœa. Splenic enlargement. Much delirium. In the second (fifth) week the fever and its symptoms abated, but in the sixth week (February 9th) a rigor introduced a rise of temperature to 101·8°, and by the 11th the evening temperature was 104·2°. There was no diarrhœa, but an abundant eruption of spots began on the 18th February (ninth day of relapse) and lasted seven days. The relapse was long as well as severe, normal temperature not being reached till the ninth week. A sudden fall from 102·6° one evening to 99·8° the next marked the inset of convalescence. The relapse began thirty-six hours after the commencement of bread diet, but was not connected with the use of aperients.

15. L. B—, æt. 28, female, dressmaker, admitted to Alice Ward, under Dr. Ord, 19th February, 1878.

Ill eight days before. No eruption on admission. Diarrhœa marked, but not severe, lasting thirteen days after admission; spleen enlarged, abdomen distended, and right iliac fossa very tender. Mitigation of all symptoms with reduction of heat in second week of sojourn (third of illness). Severe relapse beginning on March 2nd; temperature of 105° on March 5th and 6th; eruption on 8th (sixth of relapse). Constipation till 14th March (twelfth of relapse), when diarrhœa and intense abdominal pain set in, with a fall of temperature from 105·1° p.m. to 99° next morning, giving rise to fears of perforation or peritonitis. The ice-bag was applied and opium freely administered. This treatment was used for several days, during which the diarrhœa continued in a moderate amount, but the rest of the symptoms gave way. By the sixth week the temperature was normal; but in the seventh, on the stoppage of the opium, the diarrhœa returned with severity, and another relapse with a typical eruption followed. This relapse, as read on the chart, took exactly the course of a typical primary attack. The temperature rose by successive steps during four days, remained high for three days with small remissions, still high with larger remissions for four days more, and then fell, still with large remissions. A typical eruption appeared on the eighth day and lasted ten days. The case was treated like a primary attack, with free use of opium and stimulants to help the enfeebled patient in her third struggle. She ultimately made a complete recovery. The second relapse followed, but not immediately, the introduction of cereal food into her dietary.

PART II.—USE OF THE GRADUATED BATH.

Abstracts of thirteen Cases of Treatment by Graduated Baths. (*With Charts.*)

CASE 1. *Enteric fever; mitral disease; high temperature; baths; death on twenty-eighth day.*—J. G—, æt. 36, potato buyer; admitted into Arthur Ward, under Dr. Stone, 31st July, 1877.

Ill two weeks before admission. At admission enteric spots; bowels confined; no great abdominal tenderness. Heart hypertrophied; double mitral murmur; dulness and tubular respiration at the apex of the right lung. Temperature ranging at about 105°, by the 9th August, when the first bath was given.

	Temp. before.	Temp. after.	Temp. of bath.
1st bath, Aug. 9th, 5 p.m. …	103·2° …	95·0° …	96° cooled to 76° in 25 min.
2nd ,, ,, 11th, 7 p.m. …	104·2 …	96·2 …	95 ,, 71 in 30 ,,
3rd ,, ,, 12th, 5.10 p.m.	104·2 …	94·5 . .	96 ,, 70 in 25 ,,
4th ,, ,, 13th, 12.30 p.m.	Not stated.	…	96 ,, 70 in 25 ,,

The highest temperature reached was 105·3° on the 12th; the highest pulse 160 on the evening of the 11th before the bath. After the bath on the 12th the tongue, which had been dry and brown, became moist, and the lips, previously covered with sordes, were cleaned; but on the 13th, with renewed rise of temperature, the tongue became brown again. The bath on each occasion was given while the temperature was rising, and though the water was not in any instance cooled below 70°, the temperature of the body was reduced on one occasion by nearly ten degrees and to as low a limit as 94·5°. The fact that the baths were used in the case of a patient suffering from mitral disease is important. The heart affection does not seem to have interfered with the immediate effects of the baths, but how much it may have had to do with the ultimate failure of the treatment cannot be estimated. The post-mortem appearances were those of typhoid fever without perforation, and of old-standing mitral disease. See Chart I.

Case 2. *Enteric fever; high temperature; phlebitis; baths; recovery.*—L. W—, æt. 19, female, at home, admitted into Mary Ward, under Dr. Stone, 24th August, 1877.

Taken ill about August 17th. Fever lasted thirty-eight days. Highest evening temperature 105·6° on the eighteenth day. In the early part of the illness there were no serious local affections or complications, but the temperature rose in the third week to 104·0° and upwards.

The first bath was given at 10.45 p.m. on the 1st September (fifteenth day), when the temperature was at 104·0° and rising. The water was reduced from 90° to 83° in twenty minutes, and the temperature fell from 104·0° to 99°. Four hours later the temperature had risen to 103·3°. On the afternoon of the 2nd 104·2° was reached, 102·8° was registered in the morning of the 3rd, and in the afternoon at 3.30 the temperature was 104·2°. At 8 p.m., with a temperature of 103·6°, a bath at 100° was given, and was cooled during twenty minutes to 8·30°. On removal from the bath the patient's heat was still 101·6°, and it rose to 104° by 11 p.m.

Five more baths were given, the next that evening.

		Temp before.	Temp. after.	Bath
3rd bath,	Sept. 3, 11.35 p.m.,	104·8°	99.5°	90° - 78° in 30 min.
4th ,,	,, 4, 12.30 day,	103·6	101·4	90 —70 in 30 ,,
5th ,,	,, 4, 7.30 p.m.,	104·8	101·0	83 —71 in 28 ,,
6th ,,	,, 4, 11.30 p.m.,	105·0	99·8	82 —71 in 28 ,,
7th ,,	,, 5, 6.40 p.m.,	105·0	100·4	83 —76 in 20 ,,

It will be seen that the constant tendency of the temperature to rise on the 4th September was controlled by as many as three graduated baths. The baths besides lowering the heat produced much comfort, and the patient passed much better nights after them, expressing herself as much soothed.

On the 7th, the temperature still ranging high, cold sponging was resorted to, and was used in all twelve times between the 7th and 11th inclusive, with an average reduction of 1° Fahr. on each application, though in two cases there was a fractional rise. This carried the patient on to the twenty-fifth day of the illness. After the 11th the temperature fell with extensive daily remissions to its natural range, which was reached about the 24th. There was an exceptional rise, however, on the 15th to 105·2°. Sponging effected a reduction of only 0·2°. On the following morning 99·2° was registered. This great variation of 6·0° Fahr. did not appear to be connected with any local mischief.

This case was a most protracted one. The heat was great from the first, and though there arose no local complications of importance, save phlebitis in the right leg, the case was full of danger through the high temperature.

The patient ultimately made a good recovery.

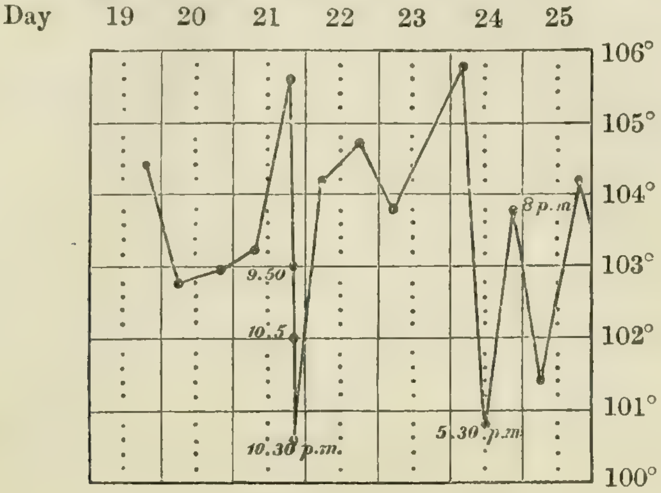
Case 3. *Enteric fever; high temperature; bath; relapse on thirty-first day; recovery.*—A. W—, æt. 20, female, married, admitted to Alice Ward, under Dr. Ord, 18th September, 1877.

Attacked September 9th. Fever, without complications, running high on September 20th, 105·6°.

On that evening at 9.30 the patient was placed in a bath at 100°. During thirty-five minutes the bath was cooled to 76°, and at the end the temperature of the patient, which had been 105·5° in axilla, fell to 102° in mouth.

Two days later the temperature having risen to 105·8° the bath was repeated. The reduction was to 100·8°, and a rise to 103·8° soon followed. The bath was not required again.

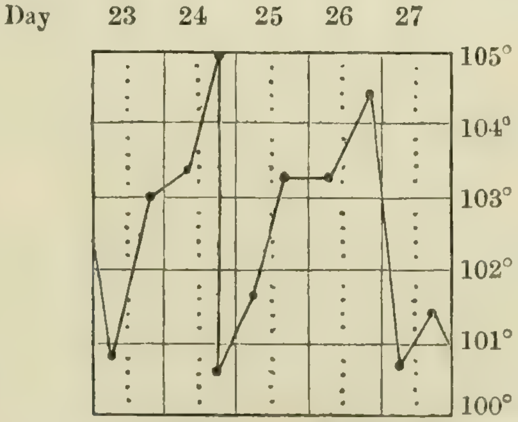
The patient afterwards had constipation, for which enemata were used on the 9th and 10th October. A relapse followed, but did no further harm, and the patient ultimately went out well.



Bath Bath
Steady fall afterwards.

CASE 4. *Enteric fever ; faucial inflammation ; bed sores ; high temperature ; bath ; recovery.*—J. J—, æt. 27, male, painter. Taken ill about 6th September, 1877. Temperature rose to 105·0° by 24th September.

A graduated bath was used at 6 p.m. on that day, and the temperature fell to 100·6°.

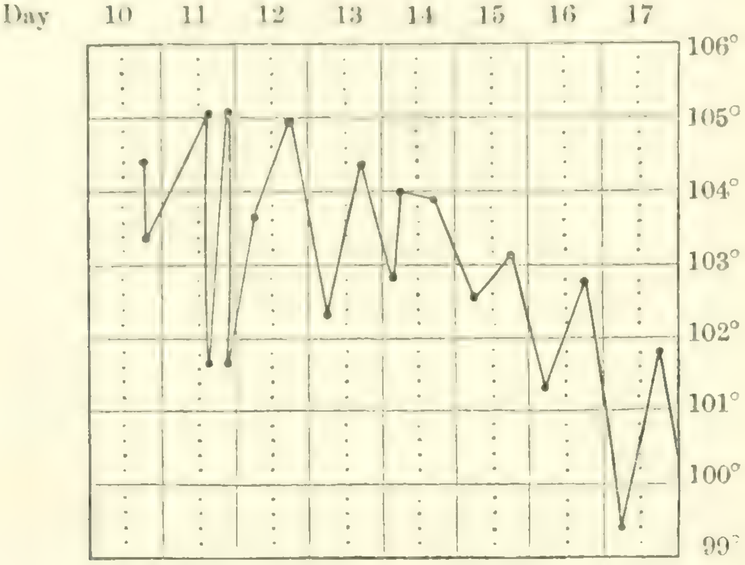


Bath. Steady fall afterwards.

The further progress was slow, several minor complications occurring, viz.—September 28th. Ulceration of uvula and soft palate. October 2nd. Bed-sores. October 24th. Otorrhœa. October 31st. Toothache.

CASE 5. *Enteric fever; high temperature; pleuritis; graduated baths; recovery.*—T. B—, æt. 27, male, riverside labourer; admitted to Arthur Ward, under Dr. Stone, 24th September, 1877. Illness began about September 15th.

On September 25th (tenth day), the temperature rose to 105·1°. At 2.30 p.m. on that day the bath was used (from 90° down to 72°, during 25 min.), and brought the temperature down to 101·8°. By 5.30 p.m. another rise to 105·2° had occurred, and the bath was repeated, with a reduction of temperature to 101·6°. On the next day the temperature touched 105·0°, but a steady daily fall followed till the 14th October, when convalescence commenced. On the 27th catarrh, and on the 7th October pleurisy, was noted, but these complications scarcely affected the progress to recovery.

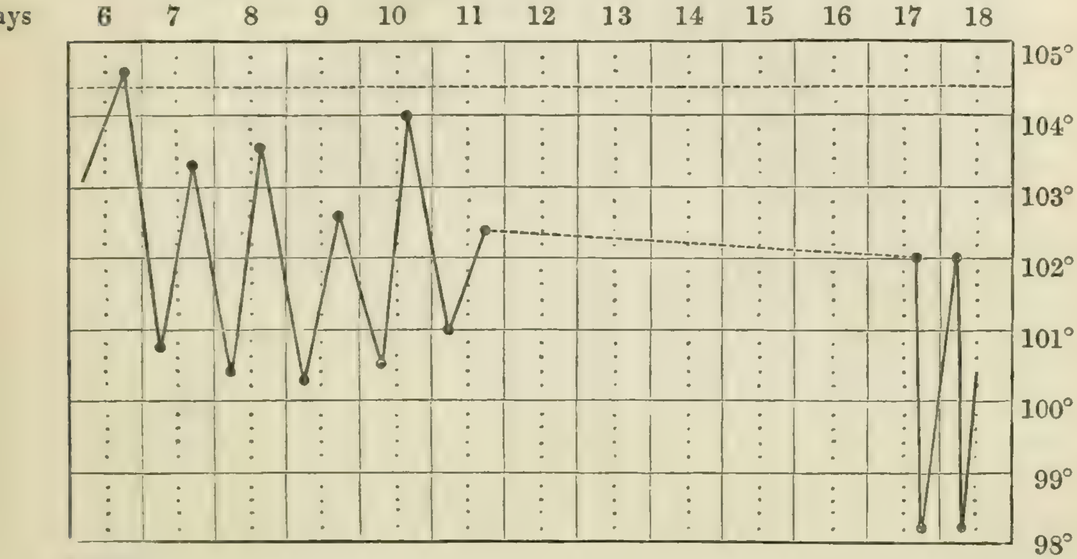


2 Baths.

CASE 6. *Enteric fever; high temperature; hæmoptysis; graduated baths; recovery.*—E. S—, æt. 22, female, married; admitted to Alice Ward, under Dr. Ord, 2nd October, 1877. Attacked September 26th. Eruption on admission; high temperature of 105·8° reached on October 2nd and 3rd; slight diarrhœa.

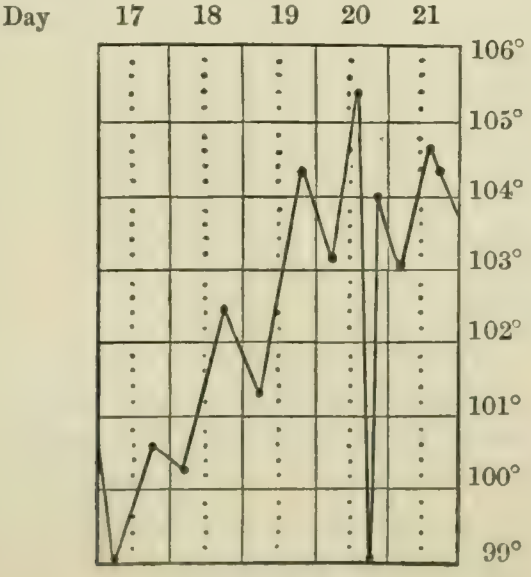
First bath, October 2nd, 7.30 p.m., 100° to 70° during 40 min. Patient's temperature reduced from 105·8° to 101·0°.

Second bath, 3rd, 1.15 a.m., 100° to 68° during 40 min. Patient's temperature reduced from 105·8° to 101·0°. The notes of the days immediately following are lost, but a relapse occurred on the 9th October and lasted till the 2nd November, the patient being ultimately discharged well on the 20th November.



2 Baths.

Case 7. *Enteric fever; high temperature; baths; recovery.*—W. D—, æt. 15, male, printer; admitted to Charity Ward, under Dr. Bristowe, 4th October, 1877. Attacked September 20th. Eruption October 8th; no complication. Primary attack subsided about 16th October; relapse on 19th; rise of temperature to 105·0° on 20th.



Bath.

Bath, October 20th, 5.20 p.m., 100° to 84° in 30 min. Reduction of patient's temperature from 105·0° to 99·0°. Return to 104·3° same night, with subsequent gradual lysis.

Case 8. *Enteric fever; pneumonia; high temperature; baths; subsequent relapse; recovery.*—J. B. S—, æt. 19, male, waiter; admitted to Charity Ward, under Dr. Bristowe, 15th October, 1877. Commencement of illness probably on October 9th. Eruption on admission. End of primary fever November 5th.

On October 18th, the temperature rose to 105·0°.

1st bath,	Oct.	18,	1.30 a.m.,	87°—68°	in 26	min.,	fall of temp. from	105·0—98·4°
2nd „	„	18,	8·12 a.m.,	85 —66	in 23	„	„ „	105·0—95·0
3rd „	„	18,	10·26 p.m.,	95 —70	in 15	„	„ „	104·8—97·0
4th „	„	19,	5.15 a.m.,	88 —68	in 15	„	„ „	105·5—96·2

After this, although the temperature sprang up again to 104·4°, it gradually yielded, and from the 27th October to the 7th November was within normal limits. Then the relapse occurred and lasted eighteen days, with a highest temperature of 105·1°; and a new eruption on the 13th November, lasting thirteen days. No baths were used in the relapse.

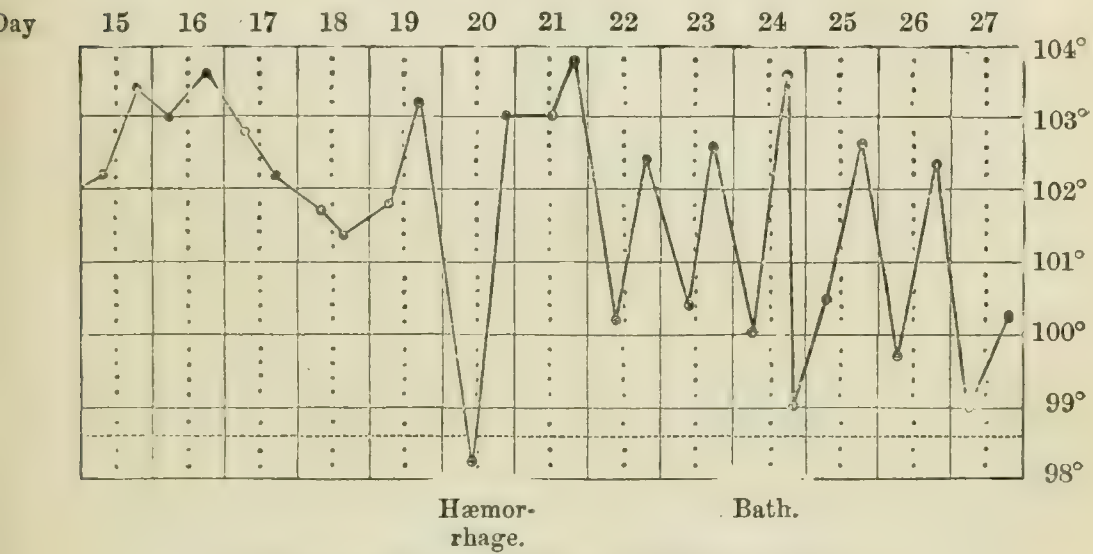
Case 9. *Enteric fever; peritonitis; pneumonia; high temperature; baths; death.*—C. M—, æt. 19, housekeeper, male; admitted to Charity Ward, under Dr. Bristowe, October 24th, 1877. Attacked October 19th. Eruption October 28th. High temperature began on 25th (sixth day).

1st bath,	Oct.	25, noon	... 96° to 64°	in 30	min.	...	Patient	103° to 98°
2nd „	„	25, 5 p.m.	... 95 to 66	in 25	„	...	„	104·8 to 98·4
3rd „	„	25, 10.10 p.m.	... 96 to 65	in 26	„	...	„	105 to 98·4
4th „	„	26, 4.55 p.m.	... 98 to 67	in 30	„	...	„	105·5 to 98·4
5th „	„	26, 11.45 p.m.	... 98 to 66	in 30	„	...	„	105·5 to 99
6th „	„	27, 12.45 p.m.	... 96 to 67	in 32	„	...	„	105 to 99
7th „	„	28, 4.10 p.m.	... 98 to 66	in 30	„	...	„	104·7 to 99·5
8th „	„	29, 6 p.m.	... 96 to 65	in 30	„	...	„	105·3 to 99·5
9th „	„	29, 11.50 p.m.	... 96 to 65	in 30	„	...	„	105 to 98
10th „	„	30, 12.40 a.m.	... 96 to 66	in 30	„	...	„	105 to 99

The bath temperatures of this patient were taken in the mouth, and the patient appeared to be more comfortable after each bath. There was hardly any delirium, which circumstance, as Mr. Taylor suggests, may probably be due to the baths. Death on November 3rd, or fifteenth day of fever.

Post-mortem report.—Enteric ulcer of small intestine; pneumonia; collapse of lung.

Case 10. *Enteric fever; hæmorrhage from bowels; high temperature; baths; gangrene of foot; amputation; death.*—C. C—, æt. 34, male, labourer; admitted to Arthur Ward, under Dr. Murchison, 23rd July, 1877. Attacked July 16th.



Subsequent gangrene of leg; amputation; death.

Eruption copious on admission. A fresh crop beginning on August 2nd and lasting ten days, indicating somewhat abortive primary attack with severe relapse.

The graduated bath was used on the 9th August, at 9.35 p.m. (96° to 77° in 25 min.). Patient 103·7° to 99°. The temperature after this gradually subsided, but on the 16th August, sharp hæmorrhage occurred; and on the 20th August, gangrene of the left foot began. Amputation was subsequently performed, but the patient died on November 7th.

Post-mortem.—"Enteric fever; gangrene of foot; amputation; pyæmia."

Case 11. *Enteric fever, abortive one week; relapse; high temperature; baths; recovery.*—H. J—, æt. 11, male, school; admitted to Arthur Ward, under Dr. Murchison, 22nd October, 1877.

Attacked October 9th. No eruption. The temperature in the first week averaged in evenings 101·6°, and fell in the second to 98·3°. In the third week the evening average was 100·2°, in the fourth 104·8°. In this week the baths were used.

1st bath	Nov.	11, 7.30 p.m.	100° to 75°	Patient	104·8°	to 98·5°
2nd ..	..	12, 12.15 a.m. ...	100 to 70	..	105	to 97·8
3rd ..	..	12, 4.15 a.m. ...	100 to 73	..	105	to 97·9
4th ..	..	13, 6 p.m. ...	100 to 71 in 20 min.	..	105	to 98
5th ..	..	14, 5.30 p.m.	100 to 70	..	104·9	to 97
6th ..	..	14, 7.30 p.m. ...	100 to 71	..	105	to 98·8
7th ,,	,,	15, 11.30 a.m. ...	100 to 70	,,	105	to 97·4
8th ..	..	16, 6.35 p.m. ...	100 to 70	..	105·3	to 98·5

In the fifth week the temperature yielded, and a very long convalescence, with complications of periostitis of tibia and fibula, and bed-sores followed. The patient was not discharged till the 30th January, 1878, more than three months after admission.

CASE 12. *Acute rheumatism; old mitral disease; pericarditis; high temperature; baths; recovery.*—S. S. A—, æt. 16, male, japanner; admitted to Charity Ward, under Dr. Bristowe, 23rd September, 1876. Attacked with acute rheumatism on September 20th. Severe inflammation of several joints, with profuse perspiration. Systolic mitral murmur. Pericarditis. On 27th excessive sudaminal eruption. On 28th rise of temperature to 106·4°.

Bath 12.30 mid-day. Had a graduated bath from 90° to 75°; duration not stated, but believed to have been thirty minutes. Temperature of patient reduced to 96·6°; rose at night to 104·1°, but afterwards subsided, and three days after was normal. Patient discharged well on 13th October, twenty days after admission, and fifteen after bath.

It is to be noted that from the 26th to the 28th the patient was taking salicylate of soda, in doses of thirty grains, every two hours. This was discontinued on the 28th when, to meet the rapid rise of temperature, the bath was used.

CASE 13. *Acute rheumatism; endocarditis; high temperature; baths; recovery.*—E. C—, æt. 25, female, single servant; admitted to Alice Ward, May 27th, 1877.

Attacked with acute rheumatism on the 22nd May. Severe affection of joints; profuse perspiration. Endocardial mitral murmur; no pericarditis. By the 31st the temperature was 103·2°, and salicylate of soda, in doses of twenty grains every four hours, was ordered. The temperature not yielding, the dose was increased to thirty grains every three hours on the 1st June. On the 2nd June the salicylate was stopped after eight doses, the patient showing signs of intolerance of it (feelings of "silliness," "noises in head," "feeling queer," "almost rambling," &c). The temperature was now 105·0.°

On the 4th, the temperature having risen to 106·3°, a bath was administered at 95°, gradually reduced to 70°, during half an hour. After the bath the patient's temperature was 96·5°. Great ease followed, all pain disappeared, and the temperature did not exceed 102·2° the next day, falling well below 100° on the 6th.

On the 19th a return of rheumatic inflammation in the right knee and both ankles was followed by a rise of the temperature to 102°. This yielded rapidly to twenty grain doses of salicylate of soda, given every two hours, and the patient gradually recovered, going out well on the 13th July, 1877.

Remarks on the use of the Graduated Bath in hyperpyrexia.

The term "graduated bath" is here used to denote a bath in which the temperature of the water at the time of immersion is at some point between 90° and 100° Fahrenheit, and is gradually lowered by from 25° to 30° during an immersion of half-an-hour's duration. The term therefore does not include the cold bath of 55° or under which is sometimes used, but to which no recourse has been had, at least of late, in this hospital.

Attention may first be directed to the two cases of acute rheumatism in which the bath was used. They were cases of great severity, with extensive and very sharp inflammation of joints, and with endocarditis. Both cases were treated at first with salicylate of soda.

In the first, a woman of 35 years, the salicylate was begun in doses of twenty grains every four hours. At the end of twenty-four hours, after six doses had been given, the dose was raised to thirty grains, the frequency increased to every three hours. While under this treatment the patient became more feverish, a profuse eruption of sudamina occurred, and noises in the head, and feelings of giddiness were complained of. At the eighth dose the salicylate was stopped, the temperature being 106·0°. The bath was then used, as indicated on the chart, and the temperature at the end of the half hour's immersion, when the bath was at 70°, had fallen to 96·5°, a difference of 9·5° Fahr. This crushed the fever for the time and for many days, though a subsequent rise of temperature occurred and was subdued by the salicylate. It may be noted that the urine did not become albuminous in this case.

In the other case, the salicylate was given from the first in doses of thirty grains every two hours, and was stopped at the seventeenth dose. No nervous symptoms are recorded; but sudamina were abundant and resembled croton oil rash, while the urine was albuminous.

Recourse was had to the bath because the temperature had risen briskly during the administration of the salicylate, and after the seventeenth dose had reached the dangerous figure of 106·4°. The bath was graduated from 90° to 64° during half-an-hour, and at the end the patient's temperature was 96·6°, a fall of nearly 10° Fahr. The fever was completely subdued, normal temperature being permanently resumed on the fourth day after the bath; the patient was allowed to get up on the twelfth day, and was presented on the fifteenth day.

The fact of the complete failure of the salicylate though given in full and rapidly repeated doses is the first point of interest in these cases. If the doses be counted up, 360 grains of salicylate will be found to have been given in forty-eight hours in the first case, and 510 grains in thirty-six hours in the second. The toxic influence of the drug was well declared, by noises in the head and giddiness in the one, by albuminuria in the other. Nevertheless the temperature continued to rise in both instances to 106° or upwards. The effect of the bath was in both to produce an immediate fall of between 9° and 10° Fahr., and a complete cessation of pain, restlessness, and other symptoms attendant on fever. And the effect was also lasting, the rebound not reaching in either case within 3° of the acme, and being followed by rapid defervescence.

If experience is worth anything in prognosis, the use of the bath, in these two cases, plainly saved life. Useful as the salicylate of soda may be in acute rheumatism generally, it must be admitted that the foregoing instances demonstrate its inadequacy in certain cases of high fever, and shew that we have in the bath a remedy capable of completely controlling the hyper-pyrexia under these circumstances. The way in which the temperature ran up during the use of the salicylate raises, in fact, a doubt as to whether the salicylate may not have aggravated matters. It will hardly be contended by anyone that the drug had not its full chance, the toxic effects having been well developed. Certainly there is no reason to think that it should have been pushed further, as has been done in some instances on record. My own opinion is that this would have resulted in further poisoning with very little chance of victory over the disease; and that the patients would have died of salicylic acid instead of acute rheumatism.

There follows another consideration of great interest. May the singularly decisive action of the bath have been favoured by the previous full use of salicylic acid? Is the power of checking hyperpyrexia dependent on the same or on different conditions in the two treatments?

In acute rheumatism the existence of two elements at least must be admitted, one local, the other constitutional. As regards the constitutional element several assertions may safely be made.

1. Certain persons are more liable to have acute rheumatism than others.

2. Certain family groups of persons are more liable than other family groups.

3. The persons and families who are thus more liable than the average to acute rheumatism tend to develop hyperpyrexia more than the average. They also tend more to contract, and with severity, other fevers, in particular scarlatina diphtheria and enteric fever.

A considerable experience and analysis of family histories justifies me in making the above assertions. They mean that in certain persons the whole system is readily set in flame by provocatives which would be unnoticed by the system of others that there is greater sensitiveness, greater chemical activity, greater readiness to disintegration. The whole subject of such family and individual febrile diathesis might be followed out

But it would take us at present too far from our proper subject.

The beginning of attacks of acute rheumatism, however, is frequently a local phenomenon. One joint, or perhaps two symmetrical joints, are often inflamed several hours in advance of the general febrility. Such joints are often those which, from the nature of the patient's employment, have more heavy work regularly thrown upon them than other joints, or have been exposed to recent violent strain. In the absence of the particular diathetic state, some aching, some pain, some stiffness, would be all that would be produced. But in persons prone by stock-inheritance to the acute rheumatic process, or brought into ill health and weak resisting state by unwholesome conditions of life, or more acutely inflammable through the effects of some chill, shock, or systemic strain, the joint sharing in the general weakness—in the general tendency to degeneration—takes on the rheumatic inflammation instead of the simple one, and the system is set on fire from this focus. In the fever which follows, the dangers, and consequently the treatment, must vary according as the series of local inflammations is wide or of grave character, and according as the general febrile action is intense. For, though there is generally high fever, with much joint affection, this rule is not always obeyed, and very frequently the general fever runs to a height altogether above the proportion which it should bear to the local inflammation.

Like blisters placed near joints, or between joints and the trunk, salicylic acid, in all probability, exercises a distinct influence in the repression of the local actions of the disease. It appears to have power to check the inflammatory process, or the disintegrations upon which inflammation depends at the point or points from which the general conflagration starts. The rapid disappearance of pain, and the mitigation of the inflammation of joints, which often follows the administration of one or two doses of salicylic acid, or its salts, afford grounds for such an opinion. These effects are often illustrated in the relapses frequently seen in the course of rheumatic fever, when the joint inflammation comes under notice before the systemic fever is developed, and is easily subdued by a few doses of the remedy before the general temperature is seriously raised. In our present knowledge of the effects of remedies it would not be fair to attribute to salicylic acid merely local influence. The remedy has, to all appearance, considerable power of reducing the temperature of the whole body; but how much by checking local inflammation, and how much by a general influence, I do not pretend to estimate.

The graduated bath, again, has probably a double remedial action, general and local. The nature of the remedy would at first sight suggest that it would diminish the bodily heat in a direct fashion, by simple ablation of excess. The way in which the bath acts, however, indicates that it has a wider function than this. It exercises, in the first instance, a remarkable sedative influence on the nervous system, and in the second place it diminishes the local pain and inflammation. If the chief effect of the bath were to take away so much heat, the use of lower temperatures than those quoted would be required. But if it is evident that we can effect our total purpose of lowering temperature and arresting morbid processes without producing shock, we may be satisfied with the application of the remedy in the milder form. The shock of plunging a fever patient into a bath at 40°, or less, has been shown by experience to be considerable, and even dangerous. If, therefore, we can satisfy ourselves that the use of the graduated bath involves several modes of action, besides the simple question of specific heat of the body, we shall be putting our practice on a safer as well as a wider basis.

In cases already quoted ('St. Thos. Hosp. Rep.,' New Ser., vol vii, 1876) I have given reason for believing that by reflex nervous influence the bath, as a soothing agent, controls internal and local inflammations. In particular, I have shown that severe bronchial catarrh, associated with high fever, has yielded as quickly as the temperature itself, and has yielded without returning. The same thing is seen in the effects of the bath upon the joints in the two cases now described. Again, on all occasions the bath is found to have calmed the patient. Under its use the excitement, restlessness, and distress, of fever abate, or so completely remit that tranquil sleep is induced. Patients who have not slept for several days have sometimes fallen asleep before the bath was over. I have seen a bronchitic child fall so soundly asleep as not to be wakened by the process of drying after the bath, so soundly as to make the bystanders a little anxious whether they were dealing with an unconsciousness deeper than sleep; and after two hours the child has wakened free from pain, dyspnœa, or cough.

This agrees with the known effect of the "cold pack" of hydropathy in procuring sleep.

The sedative effect of cold is, to my mind, therefore, the main agent in the whole process. But no doubt a considerable quantity of heat is actually abstracted from the body even by the graduated bath.

In so composite a structure as an animal body the estimation of specific heat is very difficult; but as I have recently made two observations upon the cooling of the human body in baths I venture to record them here. The observations are, perhaps, mainly useful in indicating the difficulties of the investigation, but they bring out at least one point of value.

The subject of experiment was the body of a man recently drowned. The body was somewhat thin, the height being 5 ft. 11 in., the weight 9 stone 2½ lb. The apparent age was between fifty and sixty. Rigor mortis was marked. The temperature of the room in which the experiment was made was 60° Fahr.

The body was placed in a bath of water at 110° Fahr., and the water was maintained at this heat for three hours and a quarter.

Nine non-registering clinical thermometers, kindly lent to me by Mr. Hawksley, were now inserted into the body, through holes made by a trocar, at the following points:

1. In the tissues of the neck, two and a half inches deep.
2. Deltoid, two inches.
3. Heart.
4. Liver.
5. Spleen.
6. Thigh, as near centre of limb as possible.
7. Horizontally between skin and muscles of thigh.
8. Rectum.
9. Calf.

The insertion of the thermometers occupied some little time, and the first reading of temperatures was not made till fifteen minutes after the commencement of the operation. The readings then were:

Temp. of bath	109·0°.	
No. 1. Neck	97·9°.	
„ 2. Deltoid	104·4°.	The opening made was found afterwards to have been irregular, so as to allow of the entry of the water.
„ 3. Heart	below 90·0°.	
„ 4. Liver.	„ 90·0°.	
„ 5. Spleen	„ 90·0°.	
„ 6. Thigh, deep	93·2°.	
„ 7. „ super.	100·2°.	
„ 8. Rectum	Could not be read.	
„ 9. Calf	106·6°.	Opening too free.

At 3.10 p.m., twenty-five minutes after the commencement of the insertion of the thermometers, the bath was again at 110°. It was thereafter cooled gradually as follows:

At 3.15 to 100°.
At 3.20 to 95°.
At 3.25 to 92°.
At 3.35 to 80°.
At 3.45 to 71°, or 39° reduction.

The water was then run off and the readings taken as follows:

1. Neck	94·8°.
2. Deltoid	95·0°.
3. Heart	90·3°.
4. Liver	under 90·0°.
5. Spleen	„ 90·0°.
6. Thigh, deep	100·7°.
7. „ superf.	under 90·0°.
8. ———	
9. Calf	101·6°.

The quantity of water in the bath was found to be ninety-one gallons.

The experiment was renewed next day, when the rigor mortis was passing off and general decomposition was beginning. The temperature of the room was 56°, the temperature of the body 60° in the mouth. Immersion at 10 a.m.; temperature of bath 110°.

At 12.30 p.m. (two hours and a half later) readings were taken of thermometers inserted at noon, care being taken to make small openings in the skin, and to see that the thermometers fitted them.

1. Neck	101·3°.
2. Deltoid	102·4°.
3. Heart	89·8°.
4. Liver . . .	below 90·0°.
5. Spleen . .	94·0°.
6. Thigh, deep	95·8°.
7. „ superf. .	100·4°.
8. ———	
9. Calf	102·8°.

At this moment a great flood occurred in South London, and the water entering the basement of the deadhouse in which the observations were in progress extinguished the fires by which the boilers were heated, so that, a sufficient supply of hot water not being available, the bath gradually declined in temperature.

The final observations were taken at 5.40, when, the bath being at 90·0°, it was arranged to take temperatures, to cool rapidly to 50° or thereabout, and to read again at the end of half an hour.

The long immersion had given time for the raising of the temperature in the interior of the body, and we should be able to see if half an hour's exposure to a temperature of 50° in water kept moving would affect the heat of the deeper parts.

	Readings at 5.40 p.m. Temp. 90·0°.		At 6.15 p.m., after 30 min. immersion in water at 51·3°. 91 galls. in movement.
1. Neck . .	93·6°	...	under 90·0°.
2. Deltoid . .	92·7°	...	„ 90·0°.
3. Heart . .	92·6°	...	91·8°.
4. Liver . .	92·5°	...	Into bulb, bad fit.
5. Spleen . .	91·2°	...	Into bulb, good fit.
6. Right thigh, deep	94·4°	...	Ditto.
7. Left „ superf.	89·7°	...	Ditto.
8. ———			
9. Calf . .	93·3°	...	Ditto.

There is just one inference to be drawn from the above, that in the dead body, the interior parts are only slowly affected by changes in the temperature of the surface. It will be seen that from accident or want of experience some of the observations were vitiated. But some were free from obvious error, and among them may be noted those of the thermometer plunged two and a half inches deep into the middle of the neck downwards and inwards behind the sterno-mastoid, and of that placed in the heart.

In the neck, at the end of two hours and a half of immersion in water at 110°, the temperature had reached only 97·8°, or 12·2° short. At the end of a graduated bath falling 39° in thirty minutes the temperature in the neck was 94·8°, a fall of only 3·0°, which it may be well to compare with the fall of the temperature in the living body by 10° in a bath reduced only by 30° or 25° in the same time.

Similarly with the heart. The thermometer was well introduced into its substance at the middle of septum ventriculorum. After three and a quarter hours' immersion in the bath at 110°, the temperature had not reached 90°, the lowest reading of the clinical thermometer used.

The next day, a thermometer having a lower range of indication being used, the temperature of the heart, after two and a half hours' immersion, was 89·8°. It appeared that the interior parts had all been gradually reached by the heat applied the day before, and were warmer than before the first observation was made. At the end of five hours and ten minutes, during which the bath had slowly cooled from 110° to 90°, the temperature of the heart had actually risen to 92·6°, a part of the heat already absorbed having travelled inwards. Lastly, although the body was immersed for thirty minutes in water nearly 39° lower than that in which it had stood at the end of the eight hours' cooking, the temperature of the heart was lowered only 0·8°.

In the other internal organs which agreed generally with the heart in the run of the temperatures during the warm baths, the fall in the cool bath was much more complete, but the fit of the thermometer having been found to be less accurate after the cooling than before, no importance can be attached to the observations. In fact, the whole observation is chiefly of value as a preliminary to further and wider inquiry, though it shows that the bath actually does draw a considerable quantity of heat from the superficial parts of the body. During life the constant interchange of temperature effected by the circulation of the blood would, of course, operate in cooling the interior at the expense of the exterior, and equalizing the reduction of temperature throughout the body.

Having now devoted some attention to two ways in which the bath may act, namely, as a calming agent and as a purely physical one, I wish briefly to touch upon some other considerations. The rise of temperature in part and in system has been so far accepted as a fact without explanation being sought. Broadly, there are three ways in which the temperature of a body may be raised.

1. There may be an increased reception or generation of heat.

2. There may be retention of heat which is accustomed to be set free.

3. There may be a cessation of processes by which heat is used up.

As long as the heat of fever was supposed to be a simple product of combustion the action of febrifuges appeared to be a quenching of extra fire with a removal of surplus heat, the latter being effected best by the bath, the former by internal remedies.

It is well known that Traube disputed this simple explanation, and advanced the idea noted under head 2 that heat was unnaturally retained in the body, the contraction of vessels of the surface keeping the blood in the interior, and with it the heat, which could escape but slowly on account of the small conducting power of the tissues. This might cause rise of internal temperature if there were no increase of combustion, and would increase the effect of any increase of combustion in raising heat. Within the last few years, again, the proposition has been advanced that increased and diminished temperatures have no necessary connection with increased or diminished production of heat.[1] Such a proposition has a look of paradox about it. But the calculations which support it certainly carry much weight, and may well direct our attention to the economy of heat in the body. Traube's hypothesis may be taken as a solution in part, but only in part, of the paradox, since the skin itself is actually overheated in fever. May it be further possible that during the process of fever heat which should be used up in certain natural operations is not so used, and remains free to do mischief? Heat is often seen acting thus in the laboratory. If the water bath by which evaporation of matters at fixed temperatures is to be effected becomes at any time dry, the heat that should have been used up in turning the water into steam is suddenly thrown in excess upon our evaporating dish, and the matters which should have been safe at 212° degrees, or under, are burnt. It would be a help to the solution of the problem if we could show that heat is used up ("becomes latent") in the normal process of organisation, of building up or remodelling the colloids of the body. In the hatching of an egg we know that outside heat is required from the beginning to the end. This must imply that the very active transformations then taking place do not produce enough heat to keep themselves going, that they depend upon the introduction of heat from without. The same principle is illustrated also in the young and actively growing animal, which, even if its normal temperature be high, has to be "kept warm" and cherished.

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[1] See 'Reports of Medical Officer to the Privy Council,' &c., new ser., No. vi, 1875. "On the Process of Fever," by Dr. Burdon Sanderson, F.R.S.

If great activity of metamorphosis were by itself a cause of rise of temperature, the egg and the child ought to be hotter than the full grown animal, and to be independent of external warmth. When we find that they do not show any such wealth of heat we may infer that in some way heat is used up, either by evaporation or transformation.

Now, in the process of fever, while it is evident that there is a distinct increase of combustion, it is not, as we see, so evident that this at all corresponds with the increase of temperature. During the same process the normal metamorphoses are also hindered or at a standstill. It is therefore quite possible that heat which should have been used in these transformations is left free, is set loose to effect the transformation of the destructive kind which we call combustion. A supposition of this kind, involving the maintenance of a static condition in the colloids of the body, may be an explanation of the anorexia which is characteristic of all febrility—so characteristic that it is not thought worth explaining—and is consistent with the remarkable absence of the chlorides, particularly of the chloride of sodium, from the urine. Involving, again, a static condition of the molecules of colloids, this supposition is in harmony with the sense of tension or strain belonging to the febrile state. Supposing such a condition to exist, and exist throughout the body, it follows that it must be maintained by some persistent condition of the nervous system, in which, as it were by opening or closure of a circuit, certain actions of one kind are suspended, certain actions of another kind permitted. The ease and sleep which follow the bath may, upon this supposition, be supposed to be connected with a removal of this strain, and the resumption of the normal changes belonging to tissue-building.

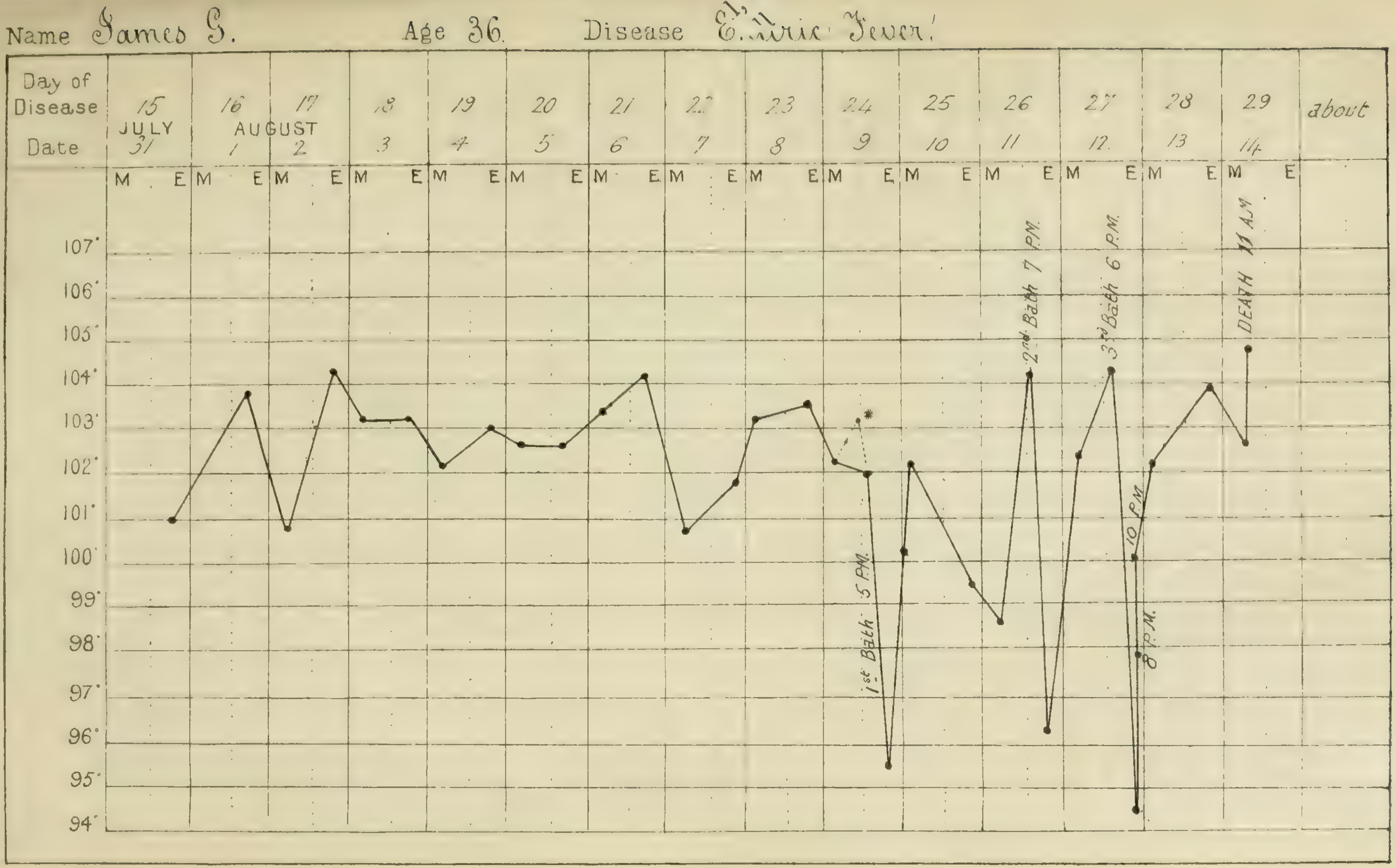
The Bath in Enteric Fever.

The relatively small mortality of this epidemic has been already noted. I venture to claim the reduction as a result of the use of baths. Of the cases in which baths were used, several were clearly arrested in a fatal course. That the bath was not always successful was to be expected. The lesions of enteric fever are so often sufficient of themselves to kill that a remedy which deals chiefly with hyperpyrexia cannot be expected to be a panacea. So far, however, as the danger in any case is purely one of hyperpyrexia, the efficiency of the bath is manifest. The cases in which it succeeded were cases of such a kind; the cases in which it failed were fatal by reason of peritonitis, perforation, or great extent of intestinal glandular lesion with exhausting diarrhœa. Even in these cases the bath has appeared to protract the struggle, affording delay during which more favorable local states might be established. And it may be noted that another external application—the ice bag—has, alone or with the bath, been able to control violent peritoneal inflammation associated with symptoms almost certainly demonstrative of perforation.

A reference to the charts will demonstrate that the effect of the bath was less decisive in the cases of enteric fever than in those of acute rheumatism. The lowering of the temperature was not carried so far, being more often from 6° to 8°, although in one instance, a fall of 11° is recorded (John S—). The subsequent rise was also often rapid, involving generally a speedy repetition of the bath. In the case of John S— the temperature rose within seven hours to a degree above that for which the first bath was given, and four baths were required within twenty-eight hours, the last finally subduing the ascent of fever and introducing a slow but unbroken recovery. In other cases the struggle was further prolonged. Henry J— was bathed eight times between the twenty-third and twenty-eighth days of the fever; and in the case of Louisa W—, while the fiercer heat of the second week was kept under by as many as seven baths, cold sponging was resorted to no less than thirteen times afterwards, the last time on the twentieth day, before the force of the fever could be regarded as broken.

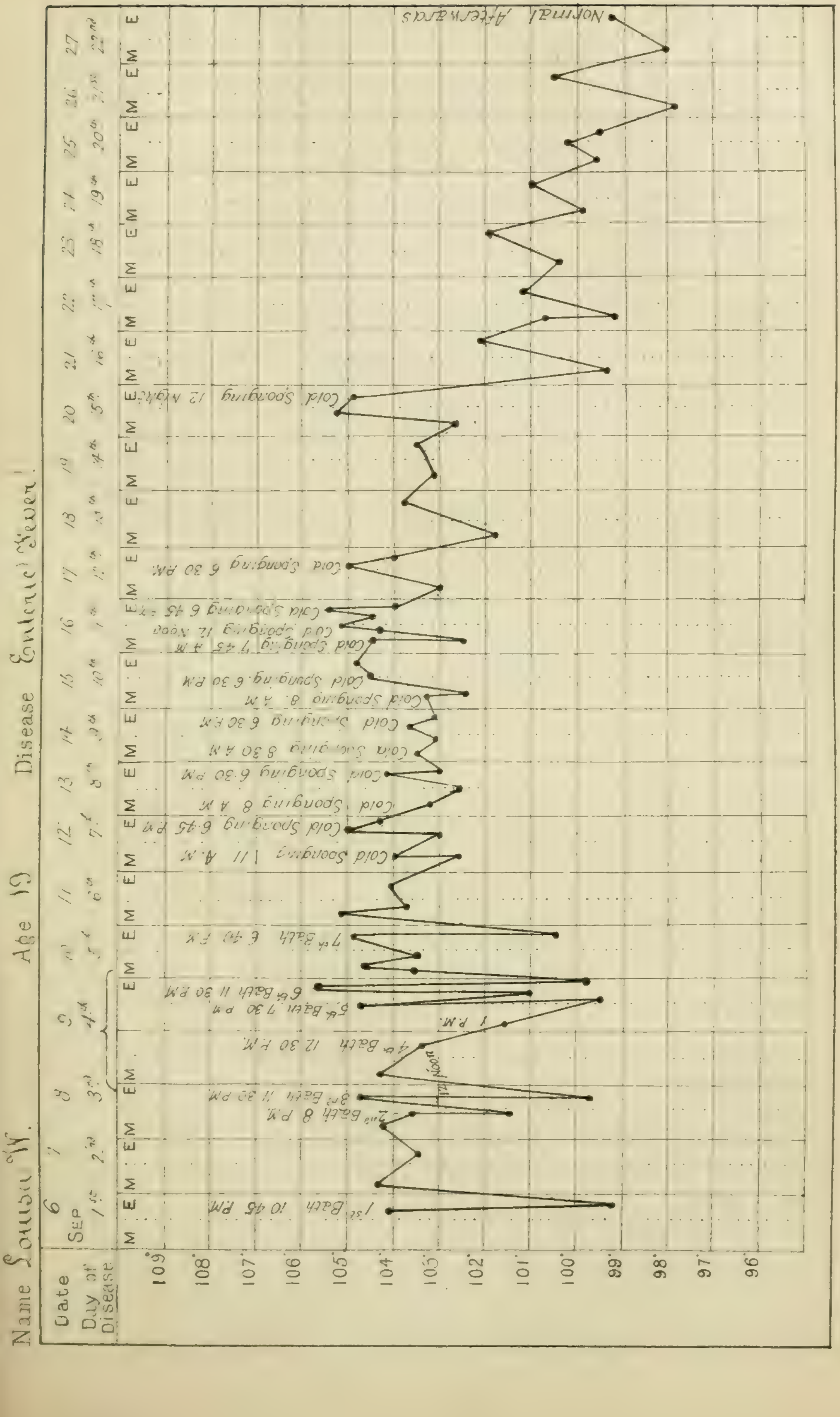
The experience of the use of salicylate of soda in enteric fever agrees with that of the bath in indicating that the more serious and persistent nature of the local lesion reduces the curative effect of the remedy. But both remedies appear to mitigate the intensity of the local process, to weaken its reaction on the system, and to diminish the response of the system to the invitations to excitement proceeding from the part. Here, however, as in acute rheumatism, the bath is the more energetic remedy of the two, and the safer. No evil results of any kind can be traced to its use, the only objections to it resting on grounds of trouble and exposure, such as ordinary care and nursing power ought to exclude. The cases presented in abstract appear to me so satisfactory as to justify, or perhaps even to demand, the use of the bath in all cases of hyperpyrexia in enteric fever where the moving of the patient is not contra-indicated by peritoneal complication or perforation. Even then the cool pack or cold sponging are valuable substitutes. The rule at present adopted with reference to the bath is that it should be used, with the above necessary exceptions, whenever in enteric fever the temperature having reached 105° is still rising, particularly if the rise be before or after the usual evening hour. As I have claimed before, the practice, though not uniformly successful, has not in any instance done any known harm, and has, in all probability, averted death in several instances. Accordingly, notwithstanding some difficulties arising in the carrying out of the process of bathing, I propose to adhere to this rule in all cases of enteric fever coming under my care.

I cannot conclude this paper without expressing my obligations to Mr. Walter Tyrrell, recently my house physician, and to my friend Mr. Seymour Taylor, who has helped me greatly [illegible]nents rection and analysis of the cases, and in the [illegible]

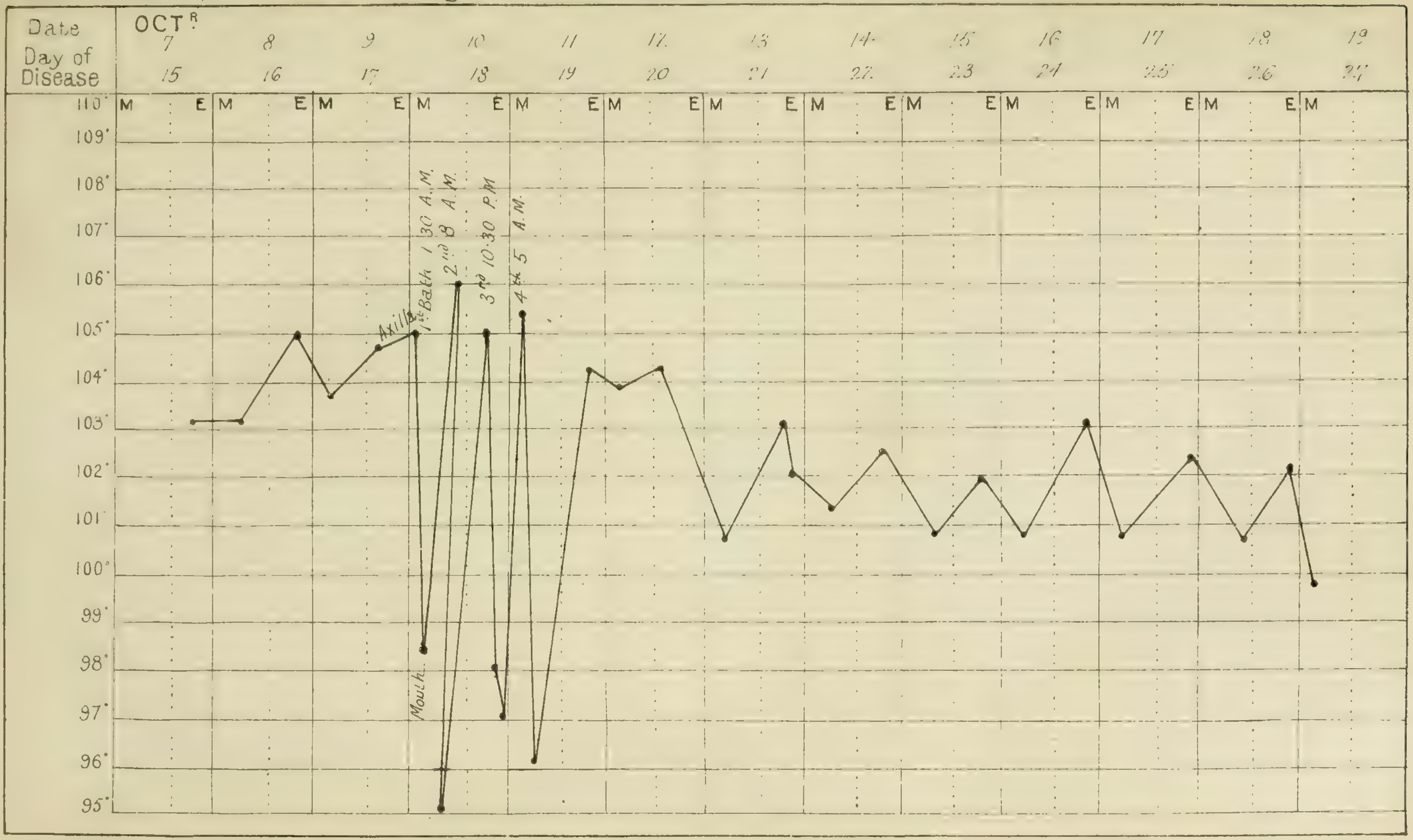


Case 1.

Plate I.

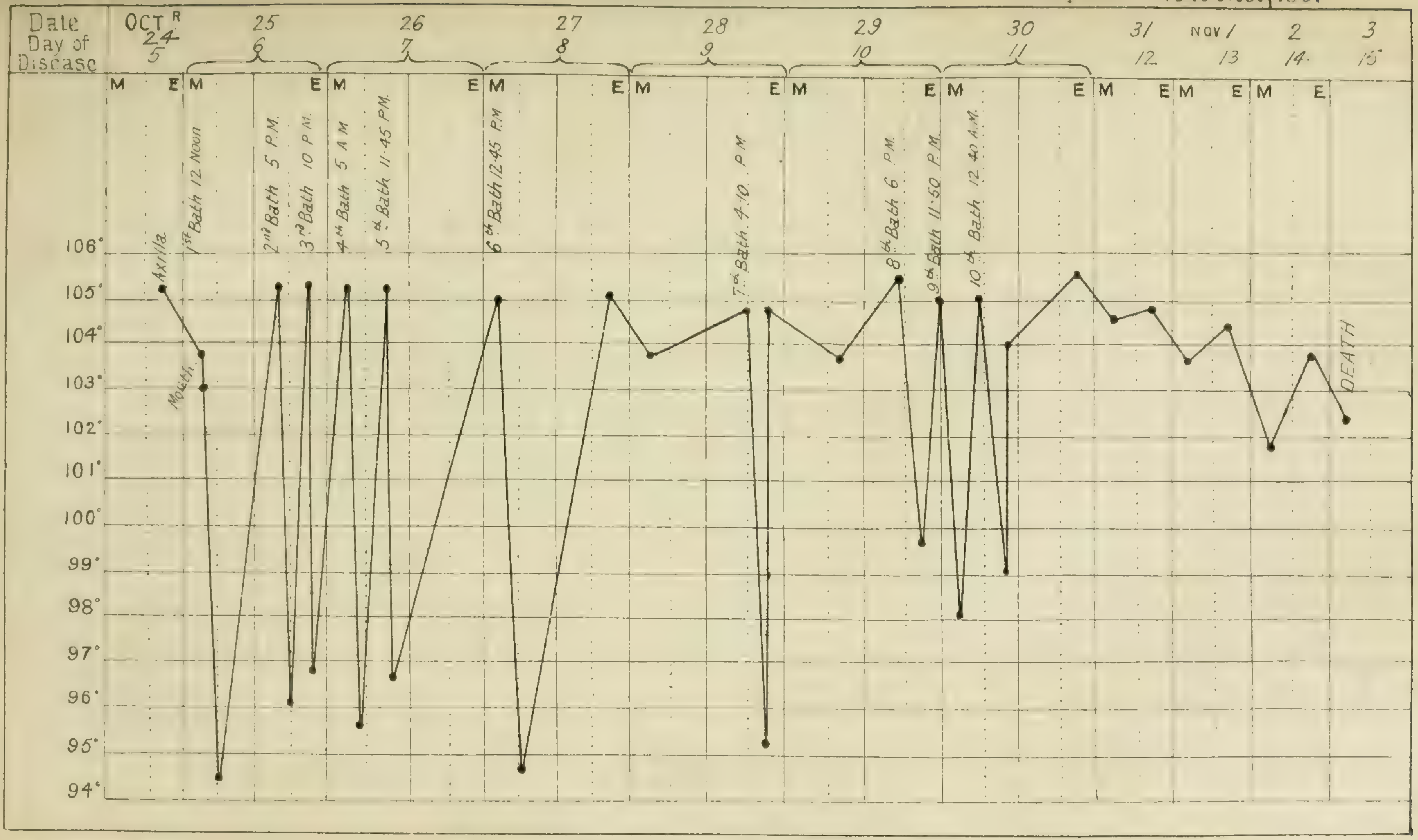

Name Louisa W. Age 19 Disease Enteric Fever!
Date Sep 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
Day of Disease 1st 2nd 3rd 4th 5th 6th 7th 8th 9th 10th 11th 12th 13th 14th 15th 16th 17th 18th 19th 20th 21st 22nd
M E
109° 108° 107° 106° 105° 104° 103° 102° 101° 100° 99° 98° 97° 96°
1st Bath 10.45 P.M.
2nd Bath 8 P.M.
3rd Bath 11.30 P.M.
Noon till
4th Bath 12.30 P.M.
1 P.M.
5th Bath 7.30 P.M.
6th Bath 11.30 P.M.
7th Bath 6.40 P.M.
Cold Sponging 11 A.M.
Cold Sponging 6.45 P.M.
Cold Sponging 8 A.M.
Cold Sponging 6.30 P.M.
Cold Sponging 8.30 A.M.
Cold Sponging 6.30 P.M.
Cold Sponging 8 A.M.
Cold Sponging 6.30 P.M.
Cold Sponging 7.45 A.M.
Cold Sponging 12 Noon
Cold Sponging 6.45 P.M.
Cold Sponging 6.30 P.M.
Cold Sponging 12 Night
Normal Afterwards

Name John S. Age 19 Disease Enteric Fever.



Case 8 ST THOMAS'S HOSPITAL REPORTS NEW SERIES VOL XXI Plate III

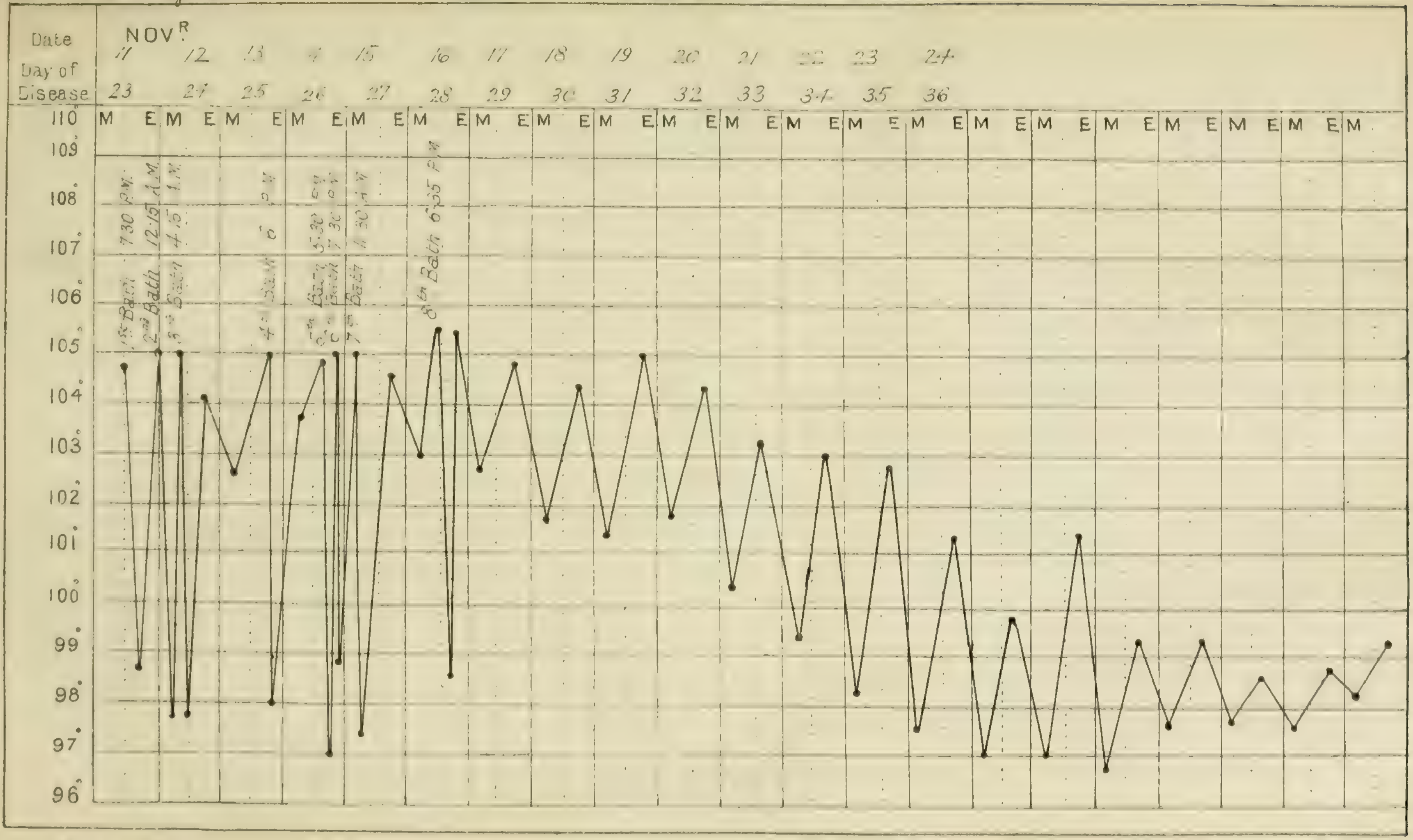
Name L. M. Disease Enteric Fever Occupation Horsekeeper.



Case 9.

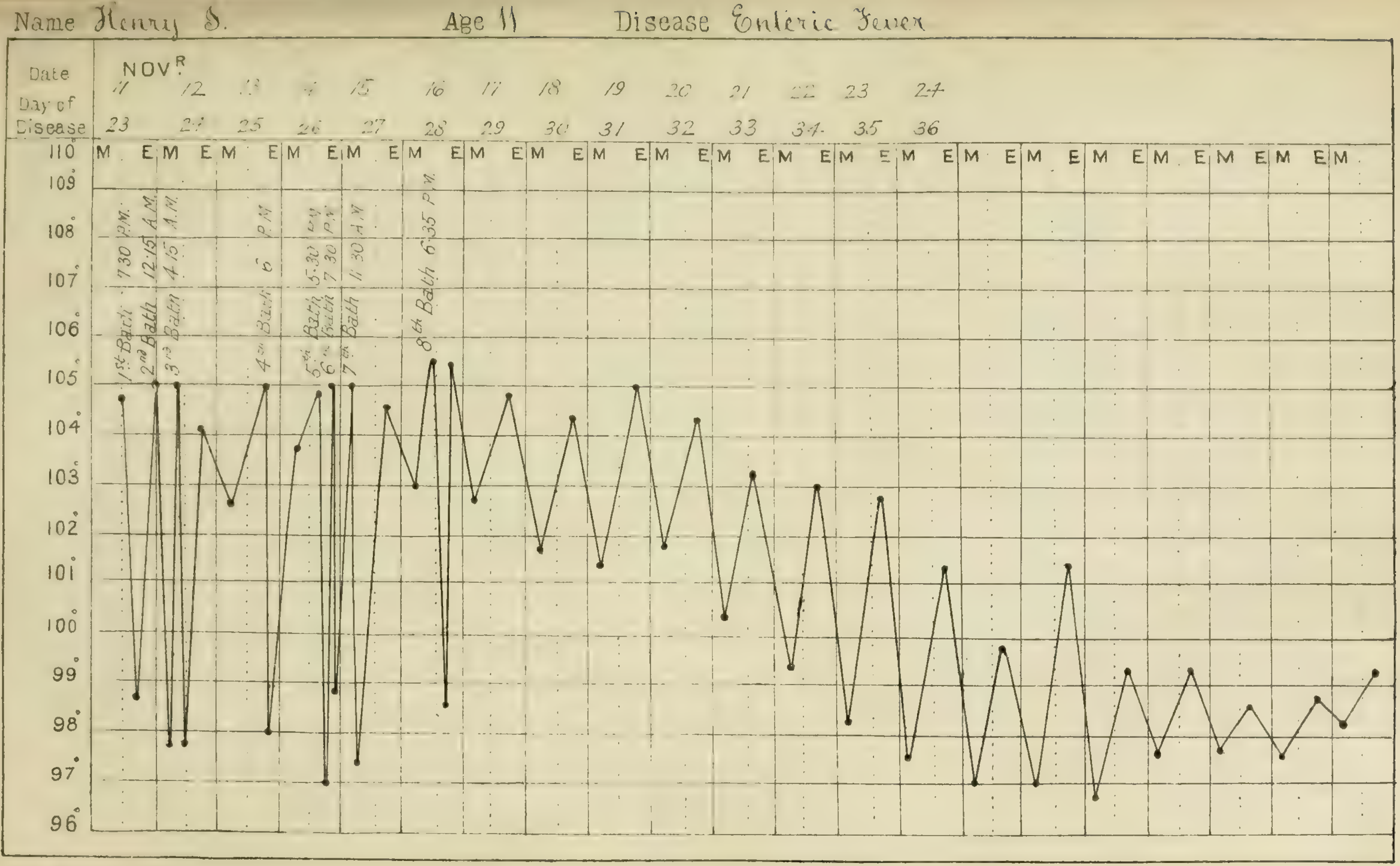
Plate IV.

Name Henry S. Age 11 Disease Enteric Fever



Case II.

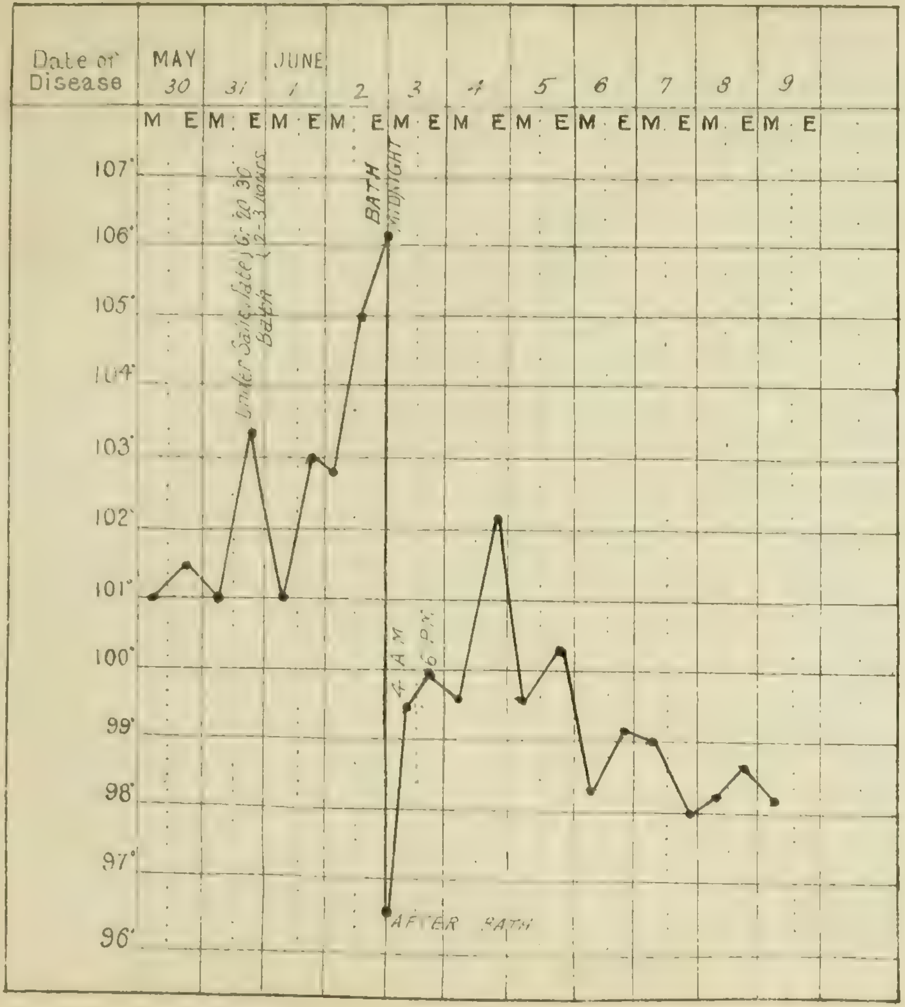
Plate V.



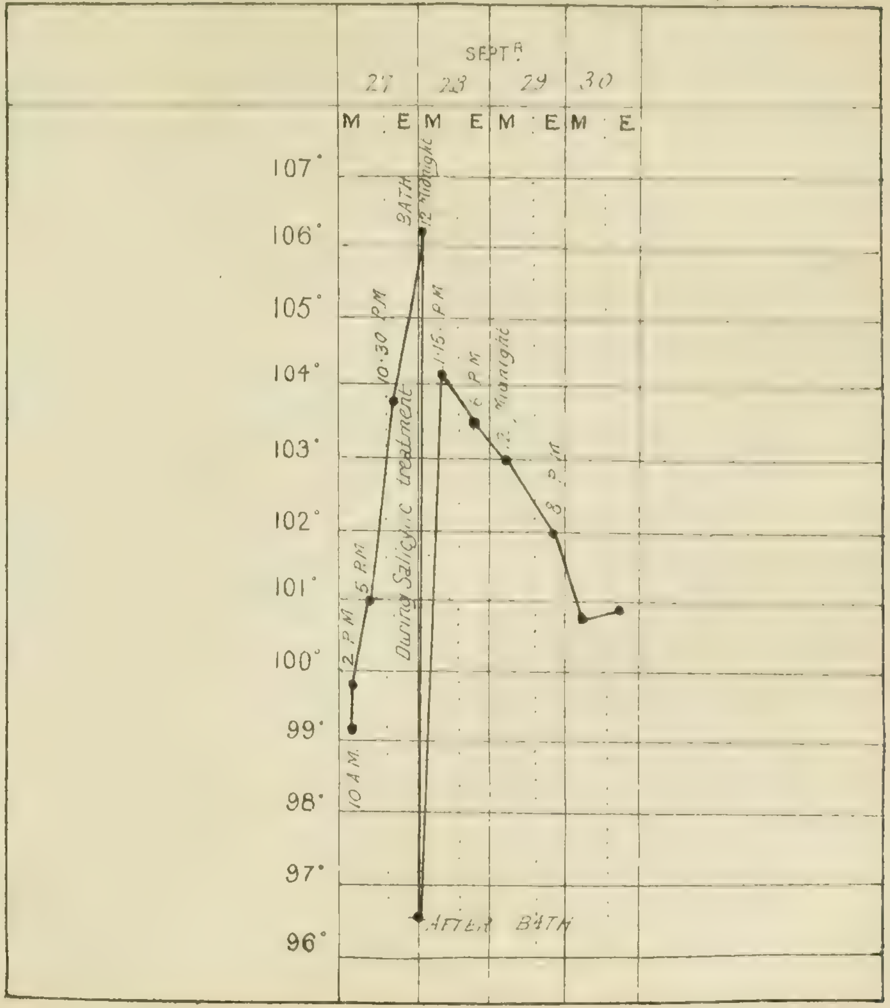
Case II.

Plate V

under Dr. Ord acting for Dr. Peacock. Adm. May 27th 1877
Acute Rheumatism. High Temperature!
Salicylate. Bath. Recovery.



under Dr. Bristowe. admitted Sept. 23rd 1876.
Acute Rheumatism! High Temperature
Salicylic Acid. Bath. Recovery



Cases 12 and 13

ON SIMPLE MENINGITIS.

By W. S. GREENFIELD, M.D.,
ASSISTANT PHYSICIAN TO THE HOSPITAL.

Acute idiopathic meningitis is a somewhat rare disease, and its causes are at present obscure. If we go back some few years in medical literature, we find that many cases were formerly recorded under the head of simple idiopathic meningitis which we should now probably regard as due to tubercular or other disease. As our knowledge of the more intimate processes of disease increases, we find that there remain fewer and fewer cases of any form of disease which we can call primary or idiopathic, and this is true of meningitis; and perhaps the further study of some of the cases which we now consider to be primary may lead us to take a different view of their nature.

If we exclude from our view all cases of meningitis which are in the widest sense secondary, we have but very few left for consideration; for I shall class with secondary not only all those traumatic cases due to external injury, but those which result from the presence of growths in the brain or meninges, or arise by extension of inflammation to the meninges from within or without. We thus exclude the meningitis which is set up by disease of the eye or ear, or by the spread of external inflammation through the orbit or auditory meatus. Otitis interna is probably often the unsuspected cause of meningitis, for it is not necessary that external discharge or obvious caries of the bone should occur, a far slighter degree of inflammation sufficing to set up the disease; and if in all cases of apparently spontaneous meningitis we could apply the test of post-mortem inspection, we should still further reduce the number of cases by excluding many cases of tubercular meningitis in the adult, running an acute course, especially those in which the vertex is chiefly involved.

The residuum of cases of acute meningitis not arising from local irritation may conveniently be divided into two chief classes, one truly primary, the other arising as a complication or sequela of acute disease, or as the result of some blood contamination. The first of these classes is represented by the sporadic cases of cerebro-spinal meningitis occasionally met with in previously healthy adults, and the form which occurs rather more frequently in infancy without known cause. The number of such cases becomes smaller and smaller as we inquire more minutely into the causes of disease.[1]

Epidemic cerebro-spinal meningitis is the disease which gives the best illustration of the action of a blood poison in producing meningitis. In this disease the action of the virus is concentrated on the meninges, but in many other diseases a similar but less intense action is observed. By far the larger number of cases of acute meningitis after the age of infancy occur either in the course of or as a sequel to the acute specific fevers—acute pneumonia and rheumatism, acute blood-poisoning, such as pyæmia and septicæmia, or the more chronic blood changes in syphilis and Bright's disease. The majority of these conditions may be classed as states of blood-poisoning in the widest sense. And it must also be remembered that in some of them there is an especial tendency to the occurrence of inflammation of serous and synovial membranes, and of the endocardium.

In the present paper I propose to dwell chiefly upon this secondary meningitis, from a clinical and pathological point of view. And, whilst allowing that the most common cause is a contaminated blood condition, I shall raise the question whether the presence of serous inflammations may not give rise to meningitis secondarily by infection.

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[1] See a paper by Dr. Gee, 'St. Bartholomew's Hospital Reports,' vol. viii, "On Meningitis and Otitis Interna."

Form of the meningitis.—The form of meningitis found in these cases differs, as is well known, from that usually resulting from traumatic causes in the fact that it is the pia mater which is primarily and mainly affected, and the arachnoid only to a less degree and secondarily: in traumatic meningitis the dura mater and arachnoid, or the arachnoid itself, being chiefly involved.

The terms "pia-arachnitis" and "dura-arachnitis," used by Drs. Wilks and Moxon, bring this distinction into relief, but the name pia-arachnitis is open to the objection that the arachnoid may not be affected at all, even when there is abundant exudation in the pia mater, and when it is involved, it is only by extension from the pia.

Its anatomical characters are intense hyperæmia, general or limited, of the pia mater, followed by exudation of lymph, puro-lymph, or thick pus into the meshes, which may be seen only as flakes here and there, or may form extensive tracts, or even an almost continuous layer filling the so-called "subarachnoid space," or meshes of the pia, passing into the sulci, and obscuring the convolutions, in fact, all the stages of vascular engorgement, exudation, and suppuration. These changes are usually most intense over the upper and inner aspects of the hemispheres. In the earlier stages the engorgement may lead to ecchymosis, and with the microscope the outwandering of leucocytes, or their accumulation in the capillary vessels of the pia, may be seen. The cortical grey matter shares the inflammation, for its capillaries are continuous with those of the pia; in the earlier stages it shows similar capillary engorgement; later there may be spots of injection and ecchymosis, and some softening.

The arachnoid may also be involved, and visible exudation be found on its visceral layer, or a very delicate film be scraped off with the knife; this either only here and there, or over a wide area, but it almost never presents a general inflammation, and is often unaffected.

Various views have been entertained of the reason of this want of reaction of the arachnoid, which seems so readily capable of inflammation from other slight causes, especially of traumatic character.

One view, which is that held by Dr. Wilks, is that the two layers of the arachnoid are comparable to the serous layers of the visceral and parietal pleura respectively, but that, whereas in pleurisy the exudation is poured out into the pleural sac, and we cannot tell whence it comes, whether from the visceral or parietal layer, in the case of the arachnoid the distinction is easy, for there is room for the exudation to accumulate in the pia when it is the visceral covering which is affected, but not when the parietal layer, that covering the dura mater, is the starting-point.

But whatever the explanation, it would seem that the visceral arachnoid is merely a delicate serous membrane or layer of cells covering the pia, and has no function independent of it, exudation from the vessels of the pia having space to accumulate around them; whilst the arachnoid of the dura is more intimately connected with the latter, forming with the vessels subjacent to it a distinct inner lining, and having functions totally different from the visceral layer. An interesting example of this diversity of function is seen when blood is effused into the "arachnoid cavity," and remains there; it generally becomes adherent to the dura-arachnoid, and, by organisation and the outgrowth of vessels from the dura usually forms a membrane adherent to the latter, having no connection with the pia unless it has been torn.[1] And many other facts might be cited to show that the arachnoid is not to be regarded as the analogue of the pleura or the peritoneum, justifying the statement of Cornil and Ranvier, "L'arachnoide n'est qu'une dependance de ces deux membranes," *i.e.* dura and pia mater. It would save much confusion to avoid speaking of the arachnoid as an independent covering of the brain; in spite of its resemblance to the other serous membranes, such as the pleura and pericardium, there is a marked distinction in its nature.

The pia mater, then, is to be regarded as the true analogue of the pleura; when effusion occurs owing to its inflammation, it is, as a rule, limited to the meshes, *i.e.* the connective-tissue spaces between its vessels; and, these being continuous with the perivascular lymph spaces in the brain, the exudation in the two is also continuous. And we shall find that when meningitis occurs under similar conditions to pleuritis or pericarditis, it is this form of inflammation which is invariably present.

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[1] This is the condition seen in "pachymeningitis hæmorrhagica," which has so long been a bone of contention amongst pathologists. I have recently brought before the Pathological Society some specimens illustrative of this change and the mode of its production. For full details see a paper by Kremiansky, in 'Virchow's Archiv,' vol. xlii, pp. 129 and 321.

The relation of secondary meningitis to the pre-existing disease is a question on which great differences of opinion have existed. When there is no other inflammatory lesion, the most natural view is that the condition of the blood is such as to predispose to the meningitis, and we have the blood-contamination theory. We know that in some fevers, and in the diseases which especially affect the blood, whether acute or chronic, such as rheumatism, gout, syphilis, Bright's disease, and pyæmia, there is a special tendency to the occurrence of inflammations of the serous membranes, and that the condition which gives rise to pleurisy or pericarditis may also light up meningitis, though there is in most cases less proclivity to meningeal inflammation. But when there already exists a serous inflammation induced by a blood condition or apart from it, we may naturally ask whether there is not some link of causation, whether the pleurisy or pericarditis has not in some way given rise to the meningitis. If we had to do only with meningitis in the course of general diseases, such as those we have named, we might be in doubt whether this could be the case, for there would always be the possibility of a common cause. But it is a remarkable fact that many of the cases occur in connection with a primary acute pleuro-pneumonia, for which no general blood condition can be invoked as a cause, and that in a considerable number of the other cases in general disease there exists some other serous inflammation.

If we allow, as I hope to show to be the case, that meningitis does arise secondarily to other serous inflammations, how are we to account for it? We leave out of sight for the moment the presence of a common cause for both in the condition of the blood.

"*Metastasis*" is the process which has been invoked to account for the phenomenon. By the older writers the term was used to denote the recession of the process of disease from one part to another in a discontinuous manner. In the case of a morbid poison generated in the body, or introduced from without, the poison was supposed actually to recede from the organ in which it was acting to another, and it was held that the poison entered into actual combination with the affected part, thus producing its morbid result. For metallic poisons, such as lead, iodide of potassium, &c., this was even supposed to have been demonstrated by chemical examination.[1] In the case of inflammation, metastasis was regarded as due to a something in the blood, which also set up local action, and was capable of becoming freed from its combination with one organ, and striking in at another. Later, the word "metastasis" came to be used with a far less definite signification. Dominated by the modern enthusiasm for embolism as the one means of diffusion of all disease in the body, modern German writers have come to regard "metastasis" and "embolism" as almost convertible terms, though with the difference that in many cases, if not in most, the disease in the original site does not entirely subside. Thus, Huguenin seeks to show that this secondary meningitis is probably in all cases due to the transmission of particles from the primary seat of disease by means of the blood current to the capillaries of the pia mater, the lighting up of inflammation thereby at one or many spots, and the subsequent extension to the whole.

It would be a mistake to lose sight of this process as one of the modes of extension of inflammation, but equally does it seem erroneous to regard it as the only one. For not only may the apparently secondary inflammation be merely another result of the operation of one common cause, but the first inflammatory process may give rise to an altered condition of the blood which shall predispose to a similar secondary result.

But we may, I think, go even further, and may see in this extension the illustration of a law which seems to me to be one governing many secondary morbid processes, and which may perhaps be styled that of homologous reactions. To state it briefly, there is a tendency of morbid reactions, whether inflammatory or other, which start in any particular kind of tissue to affect other parts of similar structure in the same way; and also, that homologous organs or parts of organs tend to be affected secondarily to each other when diseased processes arise in them.

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[1] See Budd "On the Symmetry of Disease," 'Med. Chir. Trans.,' vol. xxv.

It would be out of place here to discuss at all fully the grounds or the bearings of this law, but it seems to me one of so much importance in general pathology that a few words may be devoted to its consideration. Although it is more or less involved in some current doctrines, I cannot find that it has been distinctly formulated.

The anatomical symmetry of the local reactions of blood diseases is the nearest approach to this doctrine which has as yet been received with general acceptance, but it falls far short of the law of which I propose to speak. Under a general morbid condition, especially of the blood itself, or when a poison is conveyed by it, the symmetrically placed parts of the body are apt to react in a similar manner; that is, given a general cause and a local condition favouring the action, we get the product in obvious lesion wherever the conditions are similar. This doctrine has been so beautifully expounded and illustrated by Dr. Budd and Sir James Paget[1] that I need only refer to their papers upon it.

But I think we may carry the analogy much further, and say that there may be observed very commonly an homologous symmetry in the results of a general disease, including under the name of disease general constitutional conditions. Thus in bone and joint diseases we find that bones which are homologous but not symmetrical are often affected together. Did space permit, I might mention cases in which the corresponding bones, and even parts of bones, have been affected together with acute periostitis, acute necrosis, and syphilitic disease. For the first a good example is found in rheumatoid arthritis, and sometimes in acute gout, which often affects the homologous joints of the hand and foot in a definite order which is the same in both. And, very curiously, in the cases of bone and joint disease which I have observed, it has often been the one limb in the upper and that of the opposite side in the lower which have been affected together.

And we also find that homology of affection is seen in disease of parts which correspond in structure or function.

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[1] Budd, "On the Diseases which affect Corresponding Parts of the Body in a similar manner," 'Med.-Chir. Trans.,' vol. xxv (1841), p. 100. Paget, "On the Relation between the Symmetry and the Diseases of the Body," 'Med.-Chir. Trans.'; vol. xxv, p. 30.

But, in addition to these, which may be regarded as only exemplifications of the law on which symmetry depends, there seems to be another general law which, though allied to the first, is yet distinct from it. It is that when any particular structure or tissue undergoes a morbid reaction, which has any tendency to become diffused or infective, those organs or tissues which are of the same kind are most liable to take on the morbid reaction. Not only do we find that a new growth or an inflammatory reaction is specifically infective, *i.e.* tends to reproduce its like, but it tends to do so in those parts most like it in structure, or composed of the same tissue. This is, in fact, only an example within the body of that with which we are familiar enough in animal and vegetable life. The different kinds of tissue are comparable to different orders and genera of animals; the diseases to which one class of animals are subject propagate themselves far more readily within that class than outside it, hence many animal diseases cannot be inoculated in man, or, if inoculated, may be entirely changed in character or severity. So with the fructification of plants, which we know is limited within a very narrow range, even of species of the same class. And if we regard the tissue as a plant to be fertilized to produce morbid reaction, we see how it is that the germ of disease (or more correctly the sperm) grown in a tissue of the same kind most readily infects or fertilizes it; whilst, if we individualize the tissue, we can compare its diseases with the contagious diseases of man or animals.

So that we may state the conclusions somewhat in this way.

General or blood diseases tend to present in their local reactions either an anatomical or an homologous symmetry, or to affect tissues or organs which are structurally or functionally alike.

Morbid reactions of nearly all kinds tend to become infective, and when they are so they reproduce their like.

A morbid reaction starting in any particular kind of tissue or organ especially tends to infect tissues and organs which are of like structure.

It will at once be seen that there is a great difference between the first and third of these propositions. In the one the poison is in the blood at first, and singles out for attack similar parts; in the other the poison or infective product is produced in one part and extends to the others. Then arises the question of the method of diffusion in the latter case. The modern tendency is to ascribe everything to embolism, and to believe that in every case particles of some kind are dislodged from the primary seat of disease and carried to other parts. But a far simpler view, and one more in accordance both with our present knowledge and with the facts to be explained, is that the poison may be either an altered condition of the blood plasma or corpuscles, or some fluid absorbed into it, and thus carried everywhere through the body.

It is hardly necessary to illustrate the specific infectiveness of a large number of morbid reactions. Even a common cold in the head shows it in many cases, and the various inflammatory affections, for example, erysipelas, hospital sore throat, hospital gangrene, all reproduce their like by contagion. Pyæmia and septicæmia give still further illustrations. It seems very probable that diphtheria and enteric fever are diseases which are generated in individuals by peculiar external conditions, and then become contagious from them to others. We even find that in some epidemics there is some peculiar symptom or course which, like an inherited feature or trick of expression, shows the parentage, and cannot be accounted for by any external condition.

In the case of morbid growths we find illustrations both of the maintenance of original type of reaction, and of the secondary affection of analogous parts. Thus one specific reaction of lymphatic tissue produces tubercle, another lymphadenoma; the secondary process is like it, and is especially liable to occur in other parts of the same tissue. This is only what we might expect on *à priori* grounds. So, too, with many tumours when they give rise to secondary growths; we find them occurring especially in tissues corresponding to the seat of the original growth. This is sometimes well seen in tumours arising in connection with bone, and occasionally with secreting glands.

But when we come to deal with the various forms of inflammation there is a rather greater difficulty, especially when the inflammation is capable of affecting various organs and tissues. In some cases of acute rheumatism we seem to see an illustration of the law. I mean in those in which a local cause, such as a wetting or chill to one limb, has set up rheumatic swelling of a joint, and other joints have been subsequently involved. It seems here as if the poison were locally produced and became infective to other joints. Cases in which we can trace this definite local origin are certainly rare in comparison with those in which the cause seems more general.

I have already mentioned the case of some of the reactions which occur in the blood-poisoning of pyæmia. Curious cases are sometimes met with in which all the secondary lesions have a similar seat. Thus in some we find a number of joint abscesses, in others of subcutaneous abscesses in contiguity with, but outside of, the joints. We cannot always trace these to an original focus of similar disease, though we can in some cases.

A very remarkable instance of this occurred in the case of a man who, by a sudden strain, ruptured some fibres of his triceps brachii muscle; an abscess resulted, symptoms of pyæmia set in, and numerous abscesses were found in the muscles of the arm, secondarily to the original abscess, in the muscles of the back and in the heart wall, and nowhere else. Here, then, was a case of an infective suppurative myositis; the poison originated, the reaction started, in muscle, and muscle alone underwent the secondary reaction which was set up.[1]

The mode of diffusion of the morbid reaction is perhaps a matter of less importance. It may be either an altered chemical or physiological condition of the blood itself, or the diffusion of a morbid product in solution or as solid particles, so that we may include embolism as one of the modes of diffusion; the important point is that the parts which react to the poison are those which are, as it were, the harmonics of the originally disordered part.

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[1] The case, which was under the care of Dr. Murchison, will be published in the 'Report of the Pyæmia Committee of the Pathological Society.' For a similar case see a paper by M. Nicaise in the 'Revue Mensuelle de Med. et Chir.' No. 1.

Returning to the subject of meningitis, we shall see that it is peculiarly prone to occur when there is already present some other serous inflammation, such as pleurisy or pericarditis, to which it appears to be secondary. Usually the form of pleurisy is that secondary to pneumonia, in fact, a visceral rather than a parietal pleurisy. In the cases where such serous inflammation has not been actually present there has usually been some condition of the blood which predisposes to its occurrence.

Acute meningitis has been known to occur as a complication of a large number of diseases, including nearly all the acute specific diseases—pleurisy, pneumonia, dysentery, Bright's disease, pyæmia, &c. I shall not here discuss this question, for it has been fully treated of by Huguenin[1] (loc. cit.), and my object is to call attention to some cases rather than fully to treat of the subject of meningitis.

Of the cases which are here related, two, or perhaps three, belong to the true primary idiopathic form of meningitis. One of these is, I think, doubtfully to be ascribed to this class, some renal disease being possibly present; the remaining seven are instances of the secondary form arising in connection with fevers or other inflammations.[2] They correspond respectively to the "spontaneous purulent meningitis of the convexity," and the "metastatic meningitis" of Huguenin's classification, and have often been described together as "*simple meningitis*."[3]

CASE 1. *Acute cerebro-spinal meningitis in an infant, without known cause.*—Alice M—, æt. 4 months, was admitted, under my care (in Dr. Bristowe's absence), to Victoria Ward, on August

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[1] It is right to state that I had collected material for this purpose and largely written the present paper before Huguenin's article appeared. As that article treats very fully both of the etiology and symptoms, I have omitted a large part of what I had intended to discuss in this paper, and have merely given brief comments on the cases.

[2] Huguenin (loc. cit., p. 464) divides the inflammatory affections of the pia mater as follows:—I. Leptomeningitis infantum (equivalent to hydrocephalus without tubercle). II. Tubercular meningitis. III. Purulent meningitis (without tubercle). Subdivided into—1. Basilar meningitis with great ventricular effusion. 2. Spontaneous purulent meningitis of the convexity. 3. Traumatic meningitis. 4. Meningitis due to extension of suppurative processes. 5. Metastatic meningitis. And, 6. Epidemic cerebro-spinal meningitis.

[3] See J. Bierbaum, 'Die Meningitis Simplex,' Leipzig. 1866. Vogel.

21st, 1877, at 2.20 p.m. The child was said to have been ill for a week before admission, the illness commencing suddenly with convulsions, which had continued to occur at intervals ever since, but they had been less violent for the last two or three days. She had not been able to suckle, and had taken no notice of anything since the first attack. Bowels had been regular, the motions very offensive. No history of vomiting to be got. On admission the child was quite unconscious, with only slight convulsive movements occasionally, and appeared moribund. Temp. at 3 p.m. 105°, at 8 p.m. 105·3°. I saw her only once on the following morning, when she appeared all but dead; was perfectly quiet; pulse almost imperceptible, very rapid; temperature 104·2°; no sign of local paralysis; pupils equal, rather contracted. Optic discs natural; no sign of swelling or of optic neuritis; no tubercle visible in choroid. The child died at 8 p.m. August 22nd.

Examined 16 hours after death. *Head*: Dura mater and skull natural. No effusion or lymph in arachnoid cavity. Entire upper surface of hemispheres covered by a thick layer of greenish purulent lymph, entirely beneath arachnoid, the pia mater being generally infiltrated, and the sulci filled by this exudation; this condition extends down towards the base, but does not actually reach any part of the base. A small quantity of somewhat turbid fluid at base in interpeduncular space, but no exudation such as usually seen in tubercular meningitis. No tubercle visible at base or along Sylvian fissures. Slight effusion in ventricles; brain substance around slightly softened; no general cerebritis. There is a thick layer of exudation around the spinal cord, entirely in the pia mater, most marked in the upper half, but extending down the entire length. The other organs healthy, with the exception of slight collapse of the lungs. No tubercle anywhere to be discovered. The bones of the internal ears appeared quite healthy.

The next case is an example of a meningitis, in which no arachnitis was present, occurring in a man subject to renal disease, but also with no clear history, and its etiology doubtful.

CASE 2. *Acute meningitis, probably due to renal disease.*—

Robert R. D. E—. æt. 28, a sawyer, admitted to St. Thomas's, Albert Ward, on November 24th, 1876. He was said to have fallen over a plank on the morning of the 23rd, and to have remained in the condition in which he now was ever since, not speaking, but throwing his arms and legs about, and he had taken no nourishment. The only history that could be gained was that he had at some time passed blood with his water, that he had good health before this occurred, and that a year before he had had a fit ; beyond this nothing was ascertained.

On admission he lay moaning, with his eyes turned up and features fixed ; the limbs rigid, and resisting attempts to move them, but he could move them well himself, and threw them aimlessly about. He winced when the conjunctiva was touched. Tongue thickly coated, brown and dry ; sordes on teeth and lips ; pulse 120 ; respirations 36 ; pupils dilated ; no strabismus. Did not swallow. Lungs resonant ; breathing apparently vesicular through back, but examined with great difficulty. At apex of heart a systolic murmur was heard. Bladder not distended. Abdomen not distended. No spots.

The temperature at 10 p.m. was found to be 107·2°, at 11 p.m. 105·2°, and at 1.30 a.m. on the 25th it had fallen to 102·2°. At 12.30 a.m. the following note was made by the house surgeon :

" Perspiring profusely. Bowels have acted freely involuntarily ; motion dark. Respirations 56. Left side of chest does not move so well as right. With opthalmoscope slight haziness of retina."

At 4 a.m. an attack, described by the nurse as a slight convulsive seizure, occurred, and the temperature was found to be 107·3°. The bowels were open several times during the night, and plenty of water passed.

Towards morning the temperature again fell ; at 9·30 it was 102·8°, rose by 1 p.m to 103·8°, and again reached 105° at 4.30 p.m. The comatose condition continued without further change being noted, and the patient died at 7.15 p.m.

The treatment adopted was that of shaving the head and applying an ice-bag, a blister to the back of the neck, and the administration of nutrient enemata with bromide of potassium.

Post mortem.—Nov. 27th, 2 p.m., forty-two hours after death. Weather cold.

Body of well-nourished muscular man. No anasarca or petechiæ; no external wound. *Head* natural externally; calvaria normal; dura mater likewise normal. No fluid or exudation in arachnoid cavity. *Brain.*—Anterior part of upper surface of hemispheres covered by a layer of yellowish lymph, situated entirely beneath the arachnoid in the meshes of the pia mater. On section the grey matter of the convolutions in this region showed small red points, almost amounting to extravasation, but substance of hemispheres otherwise natural, and ventricles free from distension. On the upper surface of the cerebellum, and also around the pons and medulla oblongata, were similar layers of yellowish lymph, which, as elsewhere, was in the pia mater. No other abnormal appearance in brain or membranes. Brain weighed 32½ oz. Spinal cord not examined.

Pleuræ natural, free from adhesions. Lungs: right, 20 oz., left 19 oz., both of deep red colour, as from congestion. No marked collapse; tissue firm, not friable. Pericardium empty, natural. Heart weighing 11 oz., right auricle somewhat dilated, coagula normal; valves of right side healthy; aortic and mitral valves act perfectly with stream of water; aortic valves perfectly healthy; mitral slightly thickened at free border, but free from marked disease.

Liver weighs 63½ oz., is somewhat soft, but otherwise natural. Spleen 5 oz., soft, otherwise natural. Stomach healthy. Kidneys weigh 12 oz., capsule readily separated. Cortex and tissue generally pale, as from parenchymatous swelling, but otherwise natural.

(It should be stated that these notes are taken from the rough abstract, and are therefore less full and detailed than the complete notes, which have unfortunately been mislaid).

In this case it seems pretty clear that the meningitis was not due to a blow, this being indicated by the absence of proof in the history or morbid appearances of any evidence of such injury, and by the nature and distribution of the meningitis; but there is likewise an absence of any decisive evidence as to other causes of the inflammation, which may be regarded by some as possibly primary. In the absence of a more careful microscopical examination of the kidneys the point must be left in doubt; there is, however, in favour of a renal origin, the history of blood in the urine, though this is doubtful.

Both the mode of onset and the symptoms present some remarkable features. In its suddenness the attack resembled closely the onset of some cases of epidemic cerebro-spinal meningitis.

A few cases of cerebral abscess, secondary to otitis interna, have a similarly sudden onset, but it is very rare for unconsciousness to persist without intermission; and even in the most severe cases a temporary unconsciousness is usually succeeded either by delirium or by more or less recovery of intelligence. The absence of delirium, properly so-called, from this case is a curious fact; there is no mention of any words being uttered from the first onset, and there would appear to have been a total abolition of speech. The condition described seems to have been that known as "cerebral irritation." I shall have occasion to refer to this case later on the subject of the head symptoms—the case is an illustration of the so-called "apoplectic" form of meningitis.

Another point of interest is the temperature. This it will be noticed rose twice to over 107° F., and in the interval of six hours between these two highest points fell to 102°, and probably lower. Later still it rose to 105°. In its course the temperature curve, so far as observed, resembled that seen in pyæmia, and it is an interesting question what significance is to be ascribed to the resemblance.

Case 3. *Acute arachnitis from unknown cause in a previously healthy female.*—Hannah F. L—, æt. 21, was admitted on June 11th, 1875, under the care of Dr. Bristowe. She was in a comatose condition, and died ten minutes after admisson. No clear history could be obtained. It was stated that she had eaten a large number of oranges a day or two before, and to this her symptoms were ascribed, but the facts were not at all clear. She had had a fit, and had vomited.

Post-mortem (Jan. 14th, 9 a.m.).—Body of a stout woman, with strong muscular development, of large build.

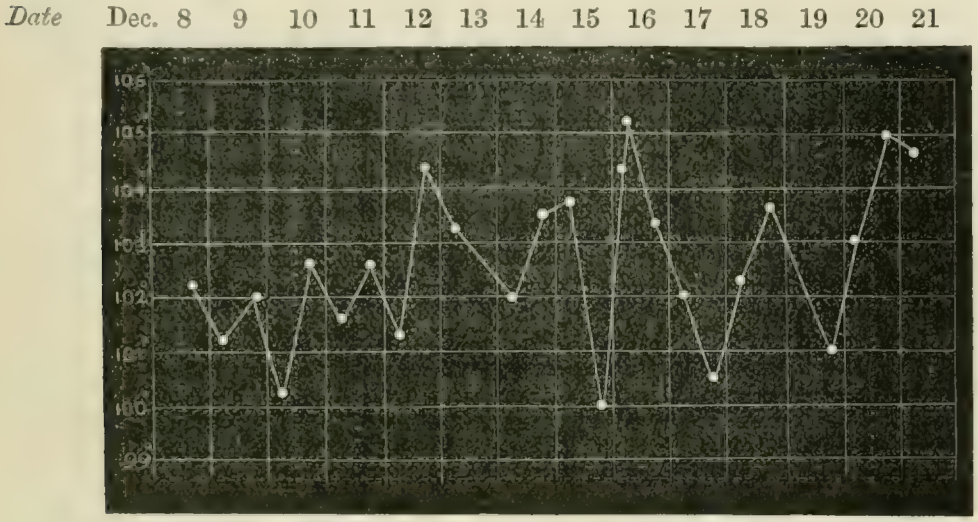
Head.—No external sign of bruise or other injury. Eyes normal. Scalp and pericranium normal; no sign of contusion. Skull somewhat thick, especially over parietal region, but no follows:—Optic neuritis is absent in the larger number of cases of acute meningitis of the vertex, whether simple or tubercular, if the cases in which there is a tubercular infiltration or tumour, or a coincident basal meningitis, are excluded. Where any affection of the eye exists in meningitis of the vertex it is more commonly only swelling of the papilla, or choked disc, and only reaches any further stage in the cases of localised meningitis (oftenest syphilitic), which run a subacute coure.

In meningitis of the base (usually tubercular), optic neuritis of marked character only occurs in a minority of cases, swelling of the papilla and a hazy condition being more frequent, but in a considerable number of cases no such change whatever being seen. Where optic neuritis or swelling of the disc has existed I have often found the sheath of the optic nerve close to the eyeball, distended with fluid; and my impression has hitherto been that, whether this fluid is there accumulated by extension from the base of the brain or is formed *in sitû* by inflammation of the sheath, that it constitutes the connecting link between the meningitis and the optic neuritis, acting in some degree mechanically; that, at least, the optic neuritis of basic meningitis is very rarely an inflammation propagated along the nerve itself; and that it is usually preceded by "choked disc."

In the following cases the meningitis was secondary to or associated with acute pericarditis or acute pneumonia. The first was one of subacute rheumatism, with ulcerating endocarditis, and it may be that it was due to the septic or embolic effects of the latter. The second case was one in which acute pericarditis was secondary to pneumonia, and the third was also one of acute pneumonia. In the other two the fact that the pneumonia was secondary to fever raises a doubt as to whether the meningitis was not independent of the pneumonia, and only a sequela of the fever.

CASE 4. *Subacute rheumatism; ulcerative endocarditis; pericarditis; subacute meningitis.*—Emma W—, æt. 19, single, living at Hammersmith, was admitted on Wednesday, Dec. 8th, 1875, to St. Thomas's Hospital, under the care of Dr. Peacock, with subacute rheumatism and cardiac symptoms.

Family history good, father and mother being healthy; three brothers and four sisters living, has not lost any. One brother has had rheumatic fever.



Patient had rheumatic fever three years ago, and was treated in St. George's Hospital for it. She probably had some affection of the heart, for she has been liable to difficulty of breathing and palpitation since. She spat some blood before she had the rheumatic fever (quantity and date unknown). She was in St. Thomas's two months ago under the care of Dr. Stone. Present illness dates from about a week before admission, when she had pain in the right shoulder, knee and legs.

On admission.—Complains of pain in shoulders and knees; no swelling of knees; skin moist and hot; pulse bounding, 96; temp. 102·2°. Is much marked with smallpox, and very unhealthy looking, thin, pale, of dull complexion, dark hair and eyes, face a little flushed.

Heart.—Dulness commences above fourth interspace, extends transversely from sternum to beyond nipple line. Much tenderness in precordial region. At the base of the heart is a loud double murmur, of which the systolic portion is loudest and most prolonged in the course of the aorta; the diastolic everywhere distinct, but loudest and most prolonged to the left of mediastinum, and distinctly heard down to the xiphoid cartilage, more distinct on the left than the right side of sternum. Between the nipple and the lower end of the sternum is another sound, which is probably distinct from the murmurs at the base and presystolic. It terminates somewhat abruptly, but further to the left dies somewhat more gradually away, and it is very feebly audible behind. The point of pulsation of the apex cannot be distinctly felt. There is no distinct thrill to be perceived. No abnormal enlargement of the liver. Pulse regular, somewhat but not always distinctly regurgitant. *Chest.*—Resonance below clavicles somewhat defective. No distinct rhonchus. Some dulness over lower part of chest on left side, with diminished vocal fremitus, and some tenderness on pressure. *Urine* free from albumen.

Dec. 14th.—Lips somewhat parched. Tongue morbidly red, especially at the tip and edges. Skin warm, slightly moist. Sleeps well; bowels open.

15th.—Patient sat up in bed and drank her tea as usual at 4.45 p.m. Complained of headache at 5 p.m., and became suddenly worse, and had a fit. In this she fell back with hands clenched, the eyeballs rolled; no lividity of face, though pulse ceased at wrist and respiration also ceased. This condition, with slight convulsive movements, lasted for about three minutes; half an ounce of brandy was given, and then the patient began to revive, the pulse became bounding and irregular, respiration slow, deep, and noisy, but not stertorous; conjunctiva insensible till 6 p.m.; pupils dilated. Hot bottles were applied to the feet, brandy with sal volatile given, and the shoulders supported. There was no return of consciousness till 7.30 p.m., and even then the patient could not answer questions. At 6 p.m. the bowels were open and patient was sick.

16th, 9 a.m.—Patient lies in an apathetic state; is a good deal exhausted; breathing short; pulse 120, not strong; tongue dry and red. Temperature rose to 104·4° this morning. Pupils dilated. At 9.45 a.m. a rigor occurred, lasting five minutes; temp. 105·2°. Patient sensible, complains of pain at the back of the head.

17th.—Complains of pain and tenderness in right ankle. Is restless, and does not feel so well. Tongue somewhat dry; breath offensive. Skin dry and warm. Temp. 102°; pulse quiet and feeble. At present her breathing is very short and attended with an occasional moan, and she is very tremulous and nervous, and seems disposed to have a rigor. She has only a slight cough, and does not expectorate. There is a slight thrill with inspiration on the left side. Is too weak to examine chest. Bowels open twice daily, relaxed.

18th.—No rigor, but shivering. Pulse 108, feeble. No appreciable difference in temperature of lower extremities. Vomited last night.

20th.—Pulse 100.

21st.—Is very much prostrated, but has not had any return of the fit, although she is almost constantly delirious and has constant nervous tremor. Physical signs much the same, but owing to her condition it is very difficult to analyse the sounds. She is very much emaciated, and there seems to be pain in limbs on movement, but no swelling of the joints. She is, perhaps, a little deaf. Temperature yesterday morning, 103°; evening, 105°; this morning 104·8°. She has a frequent troublesome cough, and expectorates a little mucus. The skin is frequently hot. No eruption on abdomen. She has a tendency to a sort of nervous rigor. Has had one relaxed motion during last night. Died at 3.30 p.m.

Post mortem thirty hours after death. Weather mild.

Body of a fairly nourished female of small build. Still warm; internal organs especially warm.

Head.—Calvaria normal; sinuses of dura mater containing a small quantity of fluid blood. Dura mater normal.

Brain weighs 42 oz. Some excess of subarachnoid fluid generally over the hemispheres, with some corresponding atrophy of the convolutions; the fluid generally turbid, but not everywhere opaque. Over the anterior part of the left frontal lobe, situated near the front of the second frontal convolution, is a patch of opaque purulent exudation $\frac{5}{8}$ths of an inch wide and $\frac{3}{8}$ths of an inch vertically, entirely beneath the arachnoid, in the meshes of the pia mater, and extending between the convolutions. The surrounding portion of the pia mater and brain free from injection. A large quantity of turbid cerebro-spinal fluid escaped on removal of brain. Pia mater at base very slightly opaque, free from injection or lymph exudation. Grey matter of convolutions pale, quite free from injection. Centra ovalia also pale. Right lateral ventricle distended, especially in the posterior and descending cornua, with slightly turbid fluid. Left also to a slight degree, but much less so than the right. No softening of surrounding brain substance. Corpora striata, optic thalami, pons, &c., entirely normal, nothing found on the most close investigation; their substance generally pale.

Spinal cord and membranes.—Dura mater in cervical region slightly injected, elsewhere normal. Slight excess of fluid in arachnoid, but no sign of inflammation in it. Along the posterior surface of the cord, entirely beneath the arachnoid, was a thin layer of opaque yellowish lymph. This was especially marked over the dorsal and lumbar regions, but was everywhere entirely limited to the posterior aspect.

Sections of the cord in a fresh condition appeared generally pale, rather opaque, free from injection, and rather soft, especially in the dorsal and lumbar regions.

Pericardium generally, but only loosely, adherent to the heart, with here and there some firm fibrous bands. No thickening of the pericardium. Very marked injection of the visceral layer over the anterior surface of the heart, where there are also some small petechiæ. *Heart* large and flabby; all the cavities dilated, walls thin; very marked disease of the aortic valves, probably originating in malformation, the left and posterior segments being blended into one, producing one very large valve with an imperfectly marked raphe behind and with a very shallow sinus. Right segment hanging down, so that there was very free regurgitation from the vessel into the ventricle when water was poured into the aorta. Beneath the united segment there was a large patch of fibrinous deposit, fully one inch in diameter, and from this a probe could be passed through a small fibrinous projection in the right auricle into the cavity of the right auricle close to the posterior edge of the auriculo-ventricular aperture. There was also at the angle formed by the attachments of the right and posterior semilunar segments a small opening which led into a passage towards the orifice of the aorta. The mitral valve was thickened and opaque, and the opening small. The lining membrane of the left auricle and ventricle was throughout opaque and thick.

Lungs.—Both somewhat collapsed towards posterior parts in tracts of various size. Anterior margin, especially of left, emphysematous. Bronchi contain a small quantity of aërated non-tenacious fluid. Mucous membrane free from injection. On section, lung tissue towards posterior parts of both much congested and œdematous, with small scattered patches of collapse. Right, 19 oz.; left, 18 oz.

Liver normal, weight 57 oz. Outlines of lobules well marked by paler colour than central portions. *Spleen* 7½ oz., large, of dark colour, rather firm. On section, pulp of deep purplish-red colour, readily washed away, raspberry jam-like on squeezing. Malpighian corpuscles normal, well marked.

Kidneys.—Right, 3½ oz.; left, 6½ oz. Left nearly twice the size of right. Both kidneys firm, of dark colour; capsule slightly adherent; surface smooth. Cortical substance somewhat thickened, very firm and tough, with prominent injected Malpighian tufts. The whole organ was full of blood.

Stomach and intestines normal, with the exception of slight prominence of the solitary glands in lower twelve inches of ileum. *Pancreas* and *supra-renal bodies* normal. *Uterus* and *ovaries* normal.

In this case, then, the patient suffering from subacute rheumatism passing into a rather chronic state, with old valvular heart disease and pericardial adhesions, is suddenly seized with a convulsive fit, with no premonitory symptoms except headache a few minutes before. She gradually recovers consciousness, vomits, and has a rigor some hours later, but to a great extent loses the marked cerebral symptoms. Then for a time there is little sign of cerebral disease beyond a nervous irritability which gradually passes into delirium, with general tremor. I would especially call attention to the tremulous semi-convulsive condition and the pain in the limbs on movement, which I should regard as symptomatic of the meningitis of the cord.

The post-mortem examination in some degree explains these symptoms, the cerebral meningitis was comparatively slight and limited; there was some general encephalitis; and there was slight, but well-marked meningitis of the cord. It may be observed also that there was marked infiltration of, and ecchymoses in, the pericardium indicative of some fresh inflammation.

The case[1] is a fairly typical one of rheumatic meningitis; but it is so far open to the objection that it may have been septicæmic that I shall not insist upon its rheumatic nature. Yet I would suggest that the possibility of the occurrence of true meningitis in acute rheumatism has been rather too much set aside and ignored since the observations on hyperpyrexia in cerebral rheumatism have become more numerous. There is too great a tendency to believe that true rheumatic meningitis is a non-existent disease; and to set down all the cases as simply hyperpyretic. The too absolute teaching of Trousseau has contributed not a little to this error.[2]

The association of meningitis with pericarditis is one which is of especial interest from the fact that delirium and various forms of mental derangement are especially apt to occur in rheumatic pericarditis. Various theories have been suggested to explain this relation, some of which I have discussed in the paper already referred to. A case has recently come under my notice in which meningitis secondary to syphilitic disease of the dura- and pia mater was the cause of death, and in which acute pericarditis was found after death to have existed (though not suspected). There could be no doubt that the syphilitic disease was the immediate cause of death. It should be stated that there was also renal disease, though without dropsy; and it is well known that acute pericarditis occurs in renal disease as a fatal complication; but the coincidence with a meningitis not due to renal disease is strongly suggestive of its having some influence in determining the pericarditis.

In the next case pericarditis was also present, secondary to acute pleuro-pneumonia.

It must not at once be assumed that in apparently idiopathic pleuro-pneumonia we are not dealing with a more or less general disease. On the one hand, we have the very frequent presence of old renal disease in fatal cases of acute pneumonia, a coincidence so common that probably every one who has made many post-mortem examinations must have been struck with it. My own observation, specially directed to this point for some time, has led me to the belief that the presence of latent renal degeneration is the most common cause of death in acute pneumonia, and that when the kidneys were previously healthy in structure they have been affected by the blood condition to an extent quite disproportionate to the amount of fever and constitutional disturbance. Whether, then, the deranged function of these organs is the predisposing cause of the pneumonia, or only the determining cause of the fatal issue we cannot disregard it in dealing with the secondary complication.

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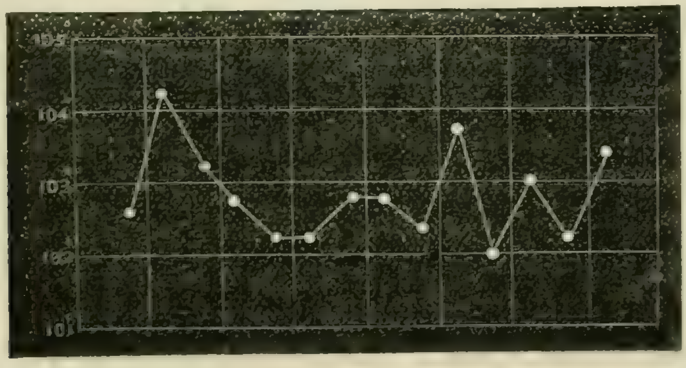
[1] For other cases see Fuller on "Rheumatism." He quotes three cases: one by Dr. Seymour, 'Medical Gazette,' vol. xix, another of Sir T. Watson's, and another of Dr. Fife's, 'Med. Gazette,' vol. xxix, p. 703. 'Lectures on Physic,' vol. ii, p. 302.

[2] See Trousseau's "Lecture on Cerebral Rheumatism," in his 'Clin. Medicine, Syd. Soc. Trans.,' vol. i, p. 527.

There are not wanting those, especially abroad, who regard acute pleuro-pneumonia as a zymotic disease, and, although the view is hardly maintained by any direct evidence, the close analogy seen in some cases cannot be ignored.

Case 5. *Acute pneumonia ; pericarditis ; meningitis.*—Alice M. W—, æt. 14, a servant ; admitted on November 30th, 1876, under Dr. Murchison.

Date	Nov. 30	Dec. 1	2	3	4	5	6	7
Day of Disease	5th	6th	7th	8th	9th	10th	11th	12th



History.—Has had a bad cough for some months ; was taken worse six days ago, with vomiting and slight shivering. Since then she has kept her bed, with difficulty of breathing and a bad cough ; she has been spitting brownish sputa, and has had pain in the front of her chest.

On admission.—Breathing rapid, 48 per minute; pain in front of chest; cough with rusty sputa; pulse 120. Tongue coated, moist; appetite bad; thirst; bowels open. Sleeps badly; feels giddy; some frontal headache; some yellowness of conjunctivæ.

Right lung dull posteriorly to apex, with loud tubular breathing, bronchophony, and some crepitation. In front hyperresonant, with large crepitation and conducted tracheal râles. No dulness over left lung; slight crepitation at base. *Heart* sounds and area of dulness normal. Temp. 102·8 in evening.

Dec. 1st.—Slept fairly; temperature 104·2°; pulse 144, rather weak; resp. 50. Seems distressed; has pain in front of chest in coughing. Slight icteric tint of conjunctiva. Other symptoms as before. Signs of absolute consolidation of greater part of right lung posteriorly, though there is a small area of resonance at the base. Anteriorly, there is also dulness though less absolute. Very little crepitation now to be heard.

Urine 1015, clear, acid; chlorides scanty; some bile pigment; a small quantity of albumen. Temp., evening, 103·3°.

2nd.—Temp., a.m., 102·8°; p.m. 102·2°; pulse 128.

3rd.—Had a restless night; no delirium. Breathing laboured, and she seems in considerable distress from dyspnœa. Temp. 102·2°; pulse 140; resp. 72. Tongue slightly coated with white fur. Right lung completely consolidated throughout. Evening temp. 102·8°; pulse 132; resp. 60.

4th.—Seems a little better, had a restless night, but not delirious. Not coughing much, sputa still rusty. Tongue moist; takes food well. Temp. 102·8°; pulse 140; resp. 60. Evening temp. 102·4°; pulse 128; resp. 48.

5th.—Slept badly; very restless last night, but no delirium. Tongue clean, icteric tint of conjunctiva much less marked. Urine contains a trace of albumen. Temp. 103·7°; pulse 144, fair; resp. 48, easy. Front of right lung completely dull from top to bottom, with tubular breathing and bronchophony; dulness also behind, with tubular breathing.

At 6 p.m. she was seized with sudden dyspnœa; seemed very ill; pulse 164.

7th.—Died at 10.15 a.m.

Post-mortem twenty-eight hours after death. Weather cold.

Body of fully-grown, well-nourished female, apparently older than age stated.

Brain, &c.—Calvaria and dura mater normal. Surface of arachnoid normal. Meshes of pia mater over vertex contain turbid yellowish fluid, and some patches of purulent lymph, especially towards the anterior part of the hemispheres, and near the middle line; not more marked along the Sylvian fissures. At the base there is also some purulent exudation in the subarachnoid space, most marked on the under surface of the pons, and not especially in the interpeduncular space. There is, however, general slight meningitis of the whole surface, which also extends to the upper surface of the cerebellum, but not specially along the Sylvian fissures. No tubercle can be seen with the naked eye. On section, very slight superficial injection of the cortex, but centra ovalia somewhat pale, no excess of puncta cruenta. No excess of fluid in ventricles. Substance of brain elsewhere apparently normal.

Spinal cord not examined.

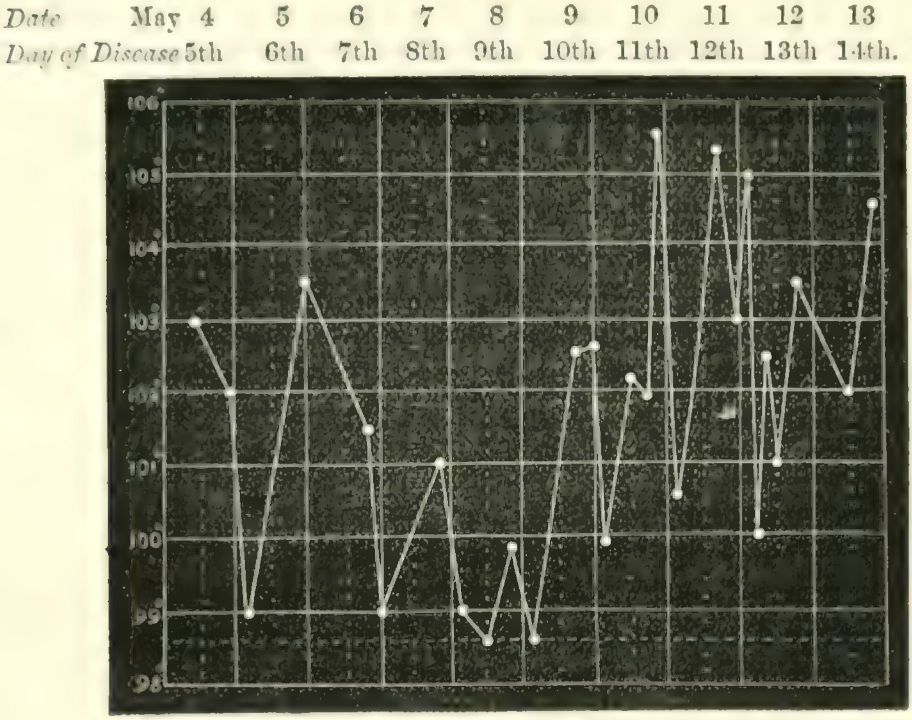
Lungs.—Right lung weighs 36 oz., generally adherent at apex by recent lymph, at base by thick, tough, partly organised lymph, the lung completely solid throughout, except a narrow strip at anterior margin of upper lobe. On section, grey hepatisation of whole lung, in a state more nearly approaching resolution in the lower than the upper lobe. No sign of older disease. Left lung slightly emphysematous, tissue congested and œdematous, otherwise normal.

Pericardium contained about 10 oz. of slightly turbid fluid, with flocculi of lymph. Serous surfaces covered with uniform layers of honeycombed lymph, of recent date, and readily scraped off.

Heart weighs 8½ oz., of normal size. Left ventricle firmly contracted, empty. Right side contains firm, pale, post-mortem coagula. Valves normal. No swelling of endocardium. Muscular tissue healthy.

Peritoneum normal. *Liver* 59 oz., normal. *Spleen* 7½ oz., slightly enlarged, congested. *Kidneys* 12 oz., enlarged; cortex slightly swollen; cloudy swelling of epithelium. *Stomach* with slight ecchymotic injection. *Intestines* normal *Uterus and ovaries* normal.

Case 6. *Acute pneumonia* (*? broncho-pneumonia*) ; *Acute meningitis.* Thomas S—, æt. 14, a printer's boy. Admitted under the care of Dr. Peacock, on May 4th, 1877. Parents living, healthy. Twelve children, of whom seven are living and in good health ; four died in infancy. Patient says that his chest has always been delicate, and he has been subject to colds.



Present illness commenced suddenly on April 30th with difficulty of breathing and cough, sputa streaked with blood. On May 1st he had decided rigors followed by heat and sweating. The symptoms have gradually increased up to the present time ; he has kept his bed.

On admission, breath short ; respiration laboured and hurried, 44 a minute. Herpetic vesicles on lips, nose, and right eyelid. Dulness at the lower part of left back, and impaired resonance over the whole of left lung ; breath sound harsh and tubular. No crepitation or friction anywhere

Heart sounds normal. Sputa blood streaked. Temp. 102·9°. Pulse 126.

May 5th.—Left side of chest fuller. Decided dulness with harsh breathing at right apex. No moist sounds. Both apices posteriorly dull, with bronchial breathing and exaggerated vocal resonance. Left base markedly dull, with metallic bronchial breathing. No moist sounds. Troublesome cough, with characteristic pneumonic sputum, very viscid, transparent, slightly aërated; but of more bright red blood colour than usual. Resp. 40, hurried, slightly audible, somewhat irregular. Pulse rather full, 104, very compressible. Skin hot, moist. Temp. 100°. Evening temp. 105°. Pulse 130. Resp. 38. He was prevented from sleeping at the commencement of night by cough, but afterwards slept at intervals, being at times slightly delirious. Is much exhausted, especially when sat up to be examined.

6th.—Still very ill; much prostrated; breathing very hurried. Temp. 102·8° morning, 101·1° evening.

9th.—Was better on the 7th. Pulse 112, respiration 42, and temperature 99·6° in the morning, and in the evening temp. 100·5°; pulse 102; resp. 36. On the 8th, morning, temp. 99·2°; pulse 92; resp. 40. Evening, temp. 99·2; pulse 86; resp. 34. Perspiration was very profuse on 6th. Skin now only slightly moist. He has not been delirious since the evening of the 5th. He is now very much improved in appearance; is breathing quite tranquilly; has much less cough; expectoration very little, and consisting of a little yellowish opaque mucus nearly free from air. Slight flush upon the cheeks; herpetic spots all scabbed. Pulse 100; skin moist; temp. 100·8°; resp. 24 to 26. There is still dulness in left dorsal region, but to a much less degree than before, and there is feeble respiration heard, without rhonchus with ordinary breathing, but with a little in full inspiration after coughing. No remains of bronchial breathing. Some impairment of resonance on right side in front. Heart sounds normal. Appetite has returned. Bowels open.

12th (*note by Dr. Turner*).—Scarcely conscious; moaning and crying out. Very noisy since 1 a.m. Rambling since 4 p.m. yesterday. Vomited in the evening, and has retched occasionally since. No signs of further pulmonary affection.

Tongue thickly coated. Bowels freely open yesterday. Is very irritable. No strabismus nor inequality of pupils (? slight tâche cérébrale). He has complained of his head.

4.30 p.m.—Temp. 103·8; pulse 88 at 4, now 108; Resp. 44. Is scarcely conscious; restless; was noisy from noon until 2 p.m., is now quiet.

9.30 p.m.—Temp. 103·4°; pulse 124; resp. 44.

13th, 12.30. a.m.—Temp. 102·8°; pulse 92; resp. 48. Quiet; rather restless, but sleeping at intervals; bowels freely open.

10 a.m.—There is now hemiplegia; paralysis of the right arm and leg; reflex movements cannot be induced; no rigidity. Mouth drawn down on left side; pupils widely dilated, right the larger, scarcely sensitive to light. Is quite unconscious, and does not recognise anybody. Breathing rapid, 44; pulse 140; temp. 102·2°. Passes evacuations involuntarily.

2.30 p.m.—Temp. 104°. Died at 5.35 p.m. Temp. at 5·15, 104·4°.

Post mortem, May 15th, 9.30. a.m., thirty-eight hours after death.—*Head* (opened first): calvaria normal. Dura mater tense; longitudinal sinus containing dark fluid blood, so also lateral sinuses. Subarachnoid fluid turbid, especially over the middle and front of left hemisphere. No inflammation of arachnoid. On removing the brain a large quantity of turbid yellow fluid was found at the base. Interpeduncular space and vessels and nerves all covered with yellow purulent lymph extending along the fissures. The inflammation appeared to be entirely subarachnoid.

The left Sylvian fissure contained a quantity of purulent fluid and lymph along the vessels, and the superficial grey matter of the convolutions was considerably softened. In the right Sylvian fissure there was much less inflammation, the pia mater being reddened, and a slight amount of yellow exudation being found in the meshes, but much less than on the left side.

Left lateral ventricle greatly distended with purulent fluid, and the ependyma almost entirely softened; the superficial parts of the corpus striatum and thalamus opticus being also much softened. Right ventricle also full of semipurulent fluid, but much less distended and with much less softening than left. Fornix completely softened. Velum interpositum and choroid plexuses extremely injected.

Grey cortical substance of convolutions injected.

No tubercle could be discovered on careful examination both with the naked eye and the microscope.

The sheaths of the cranial nerves were all distended with purulent fluid, but especially that of the left seventh nerve. The left internal ear, however, was found to be entirely free from signs of disease, and the membrana tympani intact and translucent. Eyes not examined.

Pleura.—Right normal; left with somewhat firm but recent adhesions by layers of exudation over lower lobe; and slight general adhesions over upper lobe.

Lungs.—Right 16½ oz; left 21½ oz. Lower lobe of left lung solid and dense throughout. On section the lung tissue firm, of dark red colour, with numerous pretty uniform, small areas of whitish colour formed by minute dots, evidently air cells full of catarrhal products. The condition resembles that of confluent broncho-pneumonia rather than ordinary grey hepatisation of lobar pneumonia. Tissue dry, sinks readily in water. Bronchi of lower lobe intensely engorged, containing tenacious muco-purulent fluid. Upper lobe with numerous scattered patches of broncho-pneumonia of deep red colour surrounded emphysematous tissue.

Right lung with similar scattered patches of broncho-pneumonia of recent date, with no sign of older disease.

Pericardium normal. *Heart* weighs 8 oz.; right cavities full of dark loose coagula; left ventricle contracted, nearly empty. Wall of right ventricle hypertrophied. Valves normal.

Liver, 3 lb. 9 oz: normal.

Spleen, 6 oz.; pulp soft; readily washed away; of greasy appearance and pinkish colour.

Kidneys, weight 10 oz., somewhat large; capsule slightly adherent, tearing substance on removal. Cortex pale, slightly swollen, with distinct injected Malpighian tufts, otherwise normal. Supra-renal capsules normal.

Peritoneum, empty; normal.

Intestines, very marked shaven-beard appearance of Peyer's patches in lower part of ileum, and of solitary glands of colon, but no sign of disease or ulceration, old or recent. Contents of small and large intestines, light yellow and fluid.

Pancreas, normal.

The condition of the lung *may* have been broncho-pneumonia, or ordinary lobar, with some tendency to soften, and the other recent broncho-pneumonia be due to the condition during the delirium and coma.

It is difficult in this case to trace out exactly the course of the symptoms in consequence of the gap in the notes; but the general features are clear. A lad of presumably good previous health, and with no known habits of intemperance, is admitted in a somewhat severe attack of ordinary acute pneumonia. At an usual period, the end of the seventh day, the temperature falls, the pneumonia shows signs of resolution, and the general condition is greatly improved, promising a speedy convalescence.

Next evening the temperature rises to 101°, but there is no sign of relapse, and the following day (the 9th) it is again normal. Again, however, next day there is an afternoon and evening rise to 102·5°; but this is not accompanied by any special symptoms, and occurs in many cases even without relapse. It is not till the evening of the eleventh day that anything occurred of importance, when the temperature appears to have risen somewhat rapidly from 101·5° at 5 o'clock to 105·4° at 9.30; a rapid fall following to 100·8° at 3 a.m. From the suddenness and rapidity of the rise and of the consecutive fall we are warranted in believing that the phenomena of rigor must have occurred, at least in some degree, even if they passed unnoticed. After three hours the temperature again begins to ascend, with slight falls, rising pretty steadily to 105° at 3 p.m., and 105·5° at 6. This time (at 4 p.m.) rambling delirium set in, and retching and vomiting came on in the evening. The character of the temperature rise, the absence of physical signs in the lungs, with the vomiting, all pointed to something further than a relapse of the pneumonia, a suspicion confirmed by the continued delirium, great irritability, and previous complaint of headache. But at first there were no strabismus, inequality of pupils, or paralysis. On the afternoon of the 12th the pulse seems to have been at times rather slow, but readily excited—*e.g.*

88 at 4 (temp. 103·8°), 124 at 4.30. Later at night the abnormal slowness of pulse seems to have been again observed, the rate being 92, whilst the temperature was 102·8°.

It will be observed that a very sudden and complete right hemiplegia occurred a few hours before death, with great dilatation and some inequalitity of the pupils. It is remarkable that no convulsive movements were observed at any time during the attack.

Here, then, we have rigor, headache, delirium, severe vomiting, a semi-comatose condition, with much irritability, followed by coma, with complete hemiplegia, with dilated and slightly unequal pupils. The irregularity of temperature and the rise up to the time of death are also to be noted.

Is it possible that the shaving, or rather close cropping of the head on the 8th may have had some determining effect on the inflammation? This seems at least possible, and I might mention a case where there was at least a suspicion of similar treatment precipitating tubercular meningitis.

Case 7. *Acute pneumonia following scarlet fever. Acute meningitis.*—Of this case I have unfortunately no clinical notes.

Frederick H—, æt. 3 years, admitted to Dorcas (Scarlet fever) ward, under the care of Dr. Stone, on January 26th, 1876, suffering from the sequelæ of scarlet fever, and died January 31st, at 3.30 p.m.

Post-mortem twenty-two and a half hours after death. Very slight anasarca. No fluid in either pleura or pericardium. Slight recent inflammation of right pleura, a thin layer of lymph covering the surface generally. Left normal.

Lungs.—Right fully distended, weighing 14 oz., completely consolidated from apex to base, with exception of anterior border of middle lobe; on section, uniform grey hepatisation throughout, the surface of section smooth, very slightly granular; towards the anterior part of lung the consolidation somewhat more irregular, with signs of lobular pneumonia. Bronchi throughout much inflamed and containing muco-pus. Left lung slightly congested, free from consolidation.

Heart normal $3\frac{1}{2}$ oz. *Liver* weighs 2 lb., is moderately firm; on section, smooth, of pale yellowish-pink colour, outlines of lobules ill-defined (cloudy swelling of cells). *Kidneys* 6½ oz., of normal size, somewhat soft and flabby, capsule readily separated, venæ stellatæ well marked; cortical substance somewhat swollen and mottled. *Spleen* 4 oz., natural. *Larynx* and *trachea* normal. *Tonsils*, right, enlarged, on section small points of suppuration seen scattered through it.

Brain and Membranes.—The whole of the convex surface of the hemisphere covered with recent lymph exudation, chiefly in the subarachnoid space, only slight roughening, and a little thin pellicular exudation upon the arachnoid surface. Lymph exudation also covered the base of the brain in the subarachnoid space, and infiltrated the pia mater generally in this situation. Vessels at base normal. The substance of the brain on section presented no sign of inflammation nor other disease. *Spinal cord* not examined.

This case, though incomplete, furnishes a clear instance of general acute meningitis consecutive to pneumonia, which arose in a child suffering from post-scarlatinal dropsy in an early stage; the microscopical examination of the kidney and lung, will be recorded elsewhere.

The next case is one in which the inflammation was in an early stage, but the symptoms and such conditions as were found seem to make it clear that it was a case of meningitis.

CASE 8. *Broncho-pneumonia and collapse of lungs secondary to whooping-cough; acute encephalitis; subacute meningitis without exudation.*—C. W. H—, æt. 3, admitted to Victoria ward on November 6th, 1875, under the care of Dr. Stone. The child was admitted in an apparently moribund state and died at 1.30 a.m. on November 8th. Subsequent inquiry rendered it probable that it had suffered from whooping-cough. It was said to have had convulsions and was comatose on admission.

Post-mortem.—November 9th, 9.30 a.m., thirty-five hours after death. Weather cold.

Head.—Dura mater very adherent on posterior third of cranium (not more so than usual at the age). Longitudinal sinus contains normal coagula. Superficial veins not distended, some excess of subarachnoid fluid, and considerable of cerebrospinal fluid. No sign of inflammation of membranes of the base. Over anterior part of hemispheres the pia mater but slightly more vascular than normal, but over the posterior half it is decidedly more vascular than normal, but free from exudation. On section of the hemispheres there is some considerable excess of vascularity of the cortical grey matter, which is of a rosy grey colour, with numerous small red injected points and many red vascular lines running into it. Centra ovalia also much injected, of generally rosy colour, with a large number of puncta cruenta. Lateral ventricles nearly empty. The corpora striata and thalami are normal externally, and on section are much less vascular than the rest of the brain. The brain substance is generally somewhat soft and easily lacerated. Cerebellum appears normal. Some injection of the ganglionic centres in the floor of fourth ventricle.

On microscopic examination of the cortical grey matter and of the pia mater, both in a fresh state and stained with picrocarminate of ammonia, the capillary arteries and veins were found to be gorged with blood, and many of them completely or nearly filled with leucocytes, which also in great numbers infiltrated and surrounded them.

Slight recent pleurisy over both lower lobes. Lower and posterior parts of both lungs almost entirely collapsed, with thickly scattered lobular pneumonia, chiefly in the collapsed tracts. No tubercle in lungs. Pharynx and larynx generally somewhat injected, mucous glands swollen and prominent. Other organs natural, no trace of tubercle to be discovered. Lymphatic glands in abdomen and thorax natural. Peyer's and solitary glands of intestine quite free from swelling.

The microscopic examination in this case clearly showed that there was early meningo-encephalitis, and not mere congestion of the membranes of the brain; and it may therefore be classed with the meningitis secondary to pneumonia or pleurisy.

MENINGITIS IN PYÆMIA.

As a complication of pyæmia, meningitis is certainly rare,[1] unless there be also cerebral abscess, or otitis, and the meningeal inflammation is secondary to it. I have seen it in only a very few cases, of which the two following are the best marked examples. The meningeal inflammation has here its analogue in the joint inflammations, and as a result of blood poisoning it appears to establish a connecting link with that due to rheumatic and other blood contaminations.

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[1] Huguenin says that "meningitis rarely complicates pyæmia. Pyæmi meningitis has been known to occur *without simultaneous abscesses in the lungs*, if, indeed, we can place much confidence in a number of very conflicting and

The cases will be given only in abstract.

Case 9.—Cath. E—, æt. 56, admitted Dec. 8th, 1875; died Dec. 24th, 10.45 p.m.; examined 28th, 9 a.m. Amputation of thigh for old tumour. Femoral vein filled with a softened clot, which extends up into the external iliac, being quite broken down at upper part, abruptly ceasing at junction of internal iliac vein. Common iliacs and vena cava inferior filled with a dark clot, apparently post-mortem in origin. *Lungs* much congested, with imperfect pneumonic consolidation at posterior parts, but no infarcts. *Heart* 15¼ oz., very fatty, flabby; valves act well, but aortic valve at root of aorta atheromatous. *Liver* fatty. *Spleen* somewhat enlarged, soft, friable, and greasy, as in fever. *Kidneys*: capsule somewhat adherent, cortex thick, fatty looking. *Brain*: both hemispheres covered by a thick layer of purulent lymph in the subarachnoid space, the brain substance pale, but healthy; no distension of lateral ventricles; no thrombosis of sinuses; no marked exudation at base. The joints were not examined.

It is a point of some interest that there were no secondary abscesses in the lungs. This, though somewhat rare in cases where the softened clot is found in the femoral and iliac veins, does occur in a not inconsiderable number of cases, secondary serous inflammations and joint affections being alone present, or even these may be absent.

The other case of pyæmic meningitis is so interesting and anomalous that I record it rather more fully. For the permission to narrate this case I am indebted to Dr. Murchison.

incomplete reports of autopsies." It is noteworthy that the italics are not mine but the author's. They refer to a theory which he develops, that the meningitis is due to emboli carried from infectious thrombi in the pulmonary veins, and his remarks indicate an unfortunate tendency to make facts square with theories.

Case 10.—W. T—, æt. 25, a gardener, was admitted to Arthur ward, under the care of Dr. Murchison, on June 4th, 1876, at 2 p.m. It was stated that he had been out of health for a month and had had diarrhœa, and during that time he had had occasional attacks of shivering in which his teeth chattered. He had continued his work till the morning of admission. There was no illness in the house in which he lived. He lived on a damp floor.

Notes in the evening by the House-physician.—On admission he could hardly walk, was wheeled into the ward. Countenance dusky, conjunctiva injected, general surface slightly yellow; tongue covered with white creamy fur. Abdomen distended; no gurgling; no tenderness in the right iliac fossa; many spots, but none characteristic of typhoid. On the skin of chest, abdomen, legs, arms, and face, are small petechiæ and vibices which do not disappear on pressure. Most of the large joints painful and tender, but especially the left knee and left wrist, which are swollen. Tenderness in region of spleen and liver; liver enlarged. Heart normal. Lungs resonant anteriorly, at both bases over the lower fourth comparative dulness; at right base sounds harsh and bronchial; at left much fine mucous crepitation. No pain in chest. Hacking cough; light viscid expectoration, not rusty. Mind clear; is slightly deaf. Temp. at 7 p.m. 102·5°; pulse 144; resp. 54. Bowels have acted three times since admission, watery and light-coloured motions. He did not sleep last night. Was ordered Pulv. Ipec. Co. gr. x si opus sit.

Notes by Dr. Edmunds, House-physician.—On June 5th he was seen by Dr. Murchison at 9 a.m., when his general condition was much as before. A small scab was found over the metacarpo-phalangeal joint of the right little finger, but no swelling in axilla or of lymphatics up the arm. Has not wandered, but has been very restless and throws his arms about with trembling movements when spoken to. Did not sleep after the powder. During examination he had a convulsive fit; movements most marked on left side, and mouth drawn up to right. Temperature early this morning 101·6°; at visit (after fit) 102·5°. Perspired considerably in the night (after Pulv. Ipec. Co.). Occasional cough with frothy mucous expectoration. Lungs resonant anteriorly: over lower fourth of both bases dulness on percussion. At right base breathing bronchial, at left fine crepitation. Tongue now dry and rather red. Bowels have acted five times since admission ; motions light and watery. Abdomen moderately distended and tympanitic. Splenic dulness increased, but no distinct tumour. Hepatic dulness in right nipple line about five inches. Urine scanty.

He had two more attacks following the first in quick succession, commencing with spasm of the muscles of the face. Was delirious after the first attack and continued so. Breathing laboured. Eyes fixed. The skin appeared to be getting darker, and livid in patches on the arms. Injection of conjunctivæ with extravasation. Trembling of jaw, arms, and right leg.

Had another fit, got yellow in the face, and died at 12.50 p.m.

Examination twenty-one hours after death.—Weather cold. Rigor mortis persistent, both in upper and lower limbs. Skin of body generally slightly jaundiced, as also conjunctivæ. Numerous petechiæ on legs, arms, and to a less degree on the trunk. Subconjunctival ecchymosis in both eyes. Blood in veins fluid, of dark colour and bistre tint.

Pleuræ empty and apparently normal. *Pericardium* contains about 3 oz. of yellow serous fluid. *Heart* 13 oz. Right auricle contains normal yellowish coagula, so also right ventricle. Aortic and mitral valves healthy. Aorta appears small. Numerous ecchymoses on visceral pericardium, chiefly petechial ; none on endocardium. Muscular tissue of heart healthy. *Lungs.*—Right 18 oz. Left 18 oz. Right emphysematous in upper part. Both lungs present posterior collapse, and patches of lobular collapse passing into lobular pneumonia are seen through lower lobe. No ecchymosis in lungs.

Peritoneum natural. *Liver* very large, extends 3½ inches below ribs in right nipple line, and reaches to within two fingers' breadths of the right iliac crest; it weighs 112 oz. The portal vein is distended with dark fluid blood, is free from thrombosis, and its larger branches healthy. Gall-bladder moderately full of ordinary yellow bile. The liver externally is smooth and uniform ; substance moderately firm ; on section it is of somewhat deep uniform yellow colour ; but on close inspection there is a general reticulation of greyish translucent tissue running between the lobules, and many small yellow points resembling fatty degeneration. *Spleen* 6½ oz., somewhat enlarged, moderately firm; pulp soft and readily washed away. *Stomach* shows very slight catarrh; some slight mammillation of mucous membrane, and some ecchymosis towards the pyloric end. Small and large *intestines* natural, both externally and internally. Mesenteric glands entirely free from swelling. *Kidneys* weigh 16½ oz., rather large; capsule readily separated; surface smooth; cortex somewhat thick and opaque.

Brain, &c.—Longitudinal sinus contains normal dark blood, no clot. Dura mater slightly opaque. Lateral sinuses contain dark fluid blood, but there is no trace of thrombosis or inflammation. Over the convex surface of the brain there is general meningitis, the subarachnoid space containing much yellowish semi-purulent fluid. The pia mater is very readily separated, it is considerably thickened by the sero-purulent infiltration, and presents also numerous small ecchymoses. The grey matter of convolutions slightly injected, the injection being much more marked in some parts than others. Centra ovalia are here and there slightly more vascular than normal. Lateral ventricles contain some excess of yellowish fluid. Choroid plexuses free from injection. Rest of brain natural. Weight 51 oz. Spinal cord not examined.

There is intense injection of and hæmorrhage into several of the nerves of the neck, especially in the upper part. The superior cervical ganglia of the sympathetic are both much swollen, and at the upper part of the left there is hæmorrhage into its substance, and petechiæ and ecchymoses are scattered through them. Even on a careful examination their appearance strikingly resembled that of a vein filled with partially organised thrombus, and only their connections and the absence of vein-wall served to distinguish them. The sheath of the vagus on both sides filled with blood, and some of the spinal nerves, even to their exit from the spinal canal, were in a similar condition.

Posterior part of pharynx intensely congested, with some ecchymoses, but no suppuration. No wound to be found in pharynx or in mouth. No thrombosis or phlebitis of veins or neck.

On the outer side of the left knee-joint is a quantity of yellow puriform fluid, which extends also into the joint. The synovial fringes of both are injected, but no destruction of the cartilage.

Case 11.—In one other case the existence of acute meningitis in pyæmia was noted. It was that of a man fifty-nine years of age, who had been under surgical treatment for two months, with an extensive abscess in the iliac fossa, which had gravitated into the thigh and opened over the outer and upper aspect.

The cause of the abscess was obscure, even after death; but it appeared probable that it originated in perityphlitis.

The condition of the brain was as follows:

Dura mater normal; sinuses contain natural coagula.

The arachnoid cavity contains a slight excess of fluid, there is no exudation on its serous surface over the vertex. The meshes of the pia mater are, however, filled with semi-purulent exudation of yellow colour, this being most marked in the sulci, and also especially along the course of the Sylvian fissures. At the base the interpeduncular space and the vessels and nerves in that region covered by a quantity of purulent lymph, for the most part in the subarachnoid space, but in part also superficial to it.

Pia readily separated. Grey matter of convolutions injected. Centra ovalia pale. Lateral ventricles, especially at posterior part, contain a small quantity of puriform fluid.

Remarks.—I have already in recording the cases commented on some of the symptoms observed; but they may now be briefly collated. In one case there was a marked absence of meningeal symptoms, and this is of importance, for when taken with the fact that in Case 10 the morbid process was evidently of much longer duration than the symptoms, it shows that meningitis may occur without setting up functional disturbance if it only advance to a certain point. Hence we cannot be sure that the cerebral symptoms, such as mental derangement, slight paralyses, &c., which sometimes follow acute rheumatism, and more rarely other fevers, are not due to secondary changes produced or subacute meningitis.[1] It is especially in meningitis of rheumatic origin that this slighter form is apt to occur.

In [illegible] of the cases of which I have given the clinical notes the symptoms recorded were as follows. The *onset* was marked by *convulsions* in four, they were preceded by some headache in two. The convulsions were general, though in two cases more marked on one side. They were more or less epileptiform in character, lasting only a short time, but in all they were followed by a period of unconsciousness, and in only one case were the senses completely recovered afterwards, coma or rambling delirium persisting. In three cases the convulsive seizures were repeated at intervals, either as distinct attacks of general convulsions, or slight occasional clonic spasm alternating with some tonic spasm during a condition of coma. In Case 3 also there was a "fit" of some sort followed by coma.

Vomiting occurred in three cases as a marked symptom. It was absent so far as could be ascertained in Cases 1 and 2, present in Case 3, and well-marked in 4 and 6. The vomiting was repeated in these two cases, in both of which the symptoms were prolonged; but it did not precede the other symptoms, following the convulsion in Case 4.

Headache was a marked early symptom in only two, viz. Cases 4 and 6; it appears to have been absent in Case 10.

The *pupils* were equal (when noted) in all but Case 4, and in that case inequality only occurred late, and there was involvement of the cranial nerve-sheaths; nor were ocular paralyses observed in any of the other cases.

The *pulse* was not noted near the onset of the attack in any but Case 4, in which it was rather slow compared with the temperature; where noted it was quick and feeble, but this chiefly in later stages.

The *temperature* presents the most striking variations, some of which have already been remarked. In all those which presented marked meningeal symptoms it was considerably elevated; only in Case 5 there were no marked variation from its antecedent condition. In the other cases it was high, with irregular exacerbations and more or less rigor.

The duration varied extremely—in the first case a week, the

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[1] See a paper on "Insanity as a Sequel of Acute Disease," &c., in 'St. Thomas's Hosp. Reports,' 1873.

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In six of the cases of which I have given the clinical notes the symptoms recorded were as follows. The *onset* was marked by *convulsions* in four, they were preceded by some headache in two. The convulsions were general, though in two cases more marked on one side. They were more or less epileptiform in character, lasting only a short time, but in all they were followed by a period of unconsciousness, and in only one case were the senses completely recovered afterwards, coma or rambling delirium persisting. In three cases the convulsive seizures were repeated at intervals, either as distinct attacks of general convulsions, or slight occasional clonic spasm alternating with some tonic spasm during a condition of coma. In Case 3 also there was a "fit" of some sort followed by coma.

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The *temperature* presents the most striking variations, some of which have already been remarked. In all those which presented marked meningeal symptoms it was considerably elevated; only in Case 5 there were no marked variation from its antecedent condition. In the other cases it was high, with irregular exacerbations and more or less rigor.

The duration varied extremely—in the first case a week, the second less than three days, the third about two days, the fourth about five days, the sixth less than forty-eight hours, and the tenth only two or three hours after the declared symptoms.

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[1] See a paper on "Insanity as a Sequel of Acute Disease," &c., in 'St. Thomas's Hosp. Reports,' 1873.

It is difficult, then, to find any common ground for the discussion of the cases, presenting as they do such great variations in their intensity and character, corresponding in part with their different causes and various morbid appearances. Nor are they sufficiently numerous to serve as ground for any very general propositions; but we may say that they show that the onset of meningitis in acute disease is often very sudden and unexpected, that it is usually accompanied by convulsion and high temperature, followed speedily by coma; or, on the other hand, it may be latent and unsuspected, especially in the rheumatic form.

The diagnosis in the cases of the secondary form has to be made chiefly from meningitis connected with ear disease or pyæmic abscess, from tubercular meningitis, uræmic convulsions, febrile delirium, and the delirium of collapse or transitory acute mania.

Practically the distinction from the form of meningitis and cerebral abscess associated with otitis interna is extremely difficult; it must depend rather upon the absence of indications of ear disease.

Tubercular meningitis is, perhaps, more likely to be overlooked than wrongly diagnosed as existent. In the form of secondary tubercular meningitis occurring as the terminal complication of other tubercular disease or independently of it, the symptoms are far from running the regular course described as typical of the disease, especially in adults; and it may be very rapidly fatal with very obscure symptoms. It is chiefly in the primary form of meningitis in infancy, in the cases consecutive to pneumonia, and to measles and hooping-cough in childhood, and some rarer cases in the adult, that this difficulty will be likely to arise. Here, I think, we must be guided chiefly by the course and the acuteness of the symptoms. In tubercular meningitis vomiting is often an early symptom, often recurs before any other head symptoms; there is early inequality of pupils, irregularity or intermission of pulse, and frontal headache, to be observed some hours before any further disturbance. Onset with convulsions is, except in infancy, very rare, and the temperature seldom shows at first the sudden rise seen in acute meningitis. But none of these features can be regarded as absolutely distinctive. Continuous frontal headache in an adult, with slowness and slight irregularity of pulse, persisting for a day or two without convulsions or marked rise of temperature, would in my experience be in favour of tubercular origin, whatever the subsequent course of symptoms.

From uræmic convulsions the diagnosis may also be difficult at first, especially in scarlet fever, or where there is albumen in the urine. But uræmic convulsions are not at first attended with any marked rise of temperature; they often recur in succession, and in the intervals there is usually recovery of consciousness; where only one or two convulsions occur, followed speedily by coma, there are fewer active symptoms. But in some cases the diagnosis is almost impossible.

The delirium of collapse and post-febrile mania must be distinguished mainly by the absence of fever, which forms so marked a feature in meningitis. Moreover, there are no head symptoms in most cases beyond those of violent delirium or mental derangement, no vomiting or convulsions, no inequality of pupils, nor, as a rule, marked alteration of pulse-rate.

Treatment.—Of the treatment one only can say that we know of no means which is likely to cure, yet we must not give up hope, especially in the more subacute cases following pneumonia and fever. The constant application of cold to the head, by icebags or other means, absolute quiet, free leeching to the temples and behind the ears, affords the most chance of success. I am very doubtful whether mercury is likely to be of service. The use of opium or chloral seems also to be of very questionable benefit; I should prefer large doses of bromide of potassium if some sedative seemed absolutely essential. But the careful steady application of cold to the head, consisted in even after the acute symptoms have subsided, appears to be the most essential and rational means of treatment.

OBSERVATIONS

ON A SERIES OF

DISLOCATIONS OF THE SHOULDER-JOINT

BY

WILLIAM MAC CORMAC, M.A., F.R.C.S.,
SURGEON TO THE HOSPITAL.

Although the shoulder-joint is seldom attacked by disease compared with the other large articulations, this exemption is largely compensated for by its liability to injury, and especially by the frequency with which it is dislocated; and, frequent as dislocations are, how much more frequent would they not probably be were the scapula fixed to the trunk and immovable like the ilium? Nevertheless recent dislocations rarely come under the notice of the hospital surgeon, being commonly reduced by the house surgeon or dresser.

That they are not always simple injuries is unfortunately proved by the considerable number of unreduced dislocations observed from time to time, in which the nature of the injury was either not discovered in the first instance, or having been discovered was not relieved. Such cases are sad ones, since when the interval is too long to attempt to obtain reduction, or when the attempt is made and fails, the patient's limb becomes not only permanently crippled, but is generally very painful from the pressure of the displaced head of the bone upon the brachial plexus. The muscles of the arm and forearm waste, the muscles around the shoulder-joint atrophy from disuse, fatty degeneration takes place in them, and they are liable to rupture during the efforts made to reduce an old dislocation, while even if reduction be accomplished they may never recover their proper function, the joint remaining stiff for a long period, even permanently, perhaps, a result especially liable to occur in elderly persons.

It is unnecessary to refer in any detail to the anatomical relations of the shoulder-joint, but some consideration of them may help to classify the forms of shoulder dislocation which most commonly occur, as well as to explain the best way to accomplish their reduction. Simply stated, dislocations of the head of the humerus are either anterior or posterior to the glenoid cavity, and always to a position below the normal level. The displacement is forwards, and more or less downwards, in the immense majority of the cases, occasionally backwards and downwards, and very rarely indeed directly downwards. Uncomplicated dislocation upwards appears to me, in the ordinary acceptation of the term, impossible, and, so far as I know, only three cases, that recorded by Malgaigne as *sus acromiale,* another by Professor Busch, and a third by Mr. Holmes, have been placed upon record; in all three the coracoid process was broken off.

I believe traumatic dislocations to be always complete, that is, in other words, the large rounded head of the bone passes through a rent in the capsule, and the head cannot permanently abandon the glenoid cavity, although the capsule be so lax, without tearing it. The partial displacements described probably depend on some coexisting pathological condition. But although the head passes through a rent in the capsule it cannot, except in extreme cases, travel far from the glenoid cavity close to which it is held by the untorn portion of the capsular ligament. It may overlap the glenoid cavity more or less, or even ride *à cheval* upon its anterior margin, which, if the capsule were unruptured, it certainly could not do.

In respect of forward dislocations, their variety in degree may be said to be almost infinite; no two are exactly alike. At one time the head of the bone may be drawn up close beneath the coracoid, from which it will only be separated by the thickness of the capsule, and at another time the head may rest against the anterior margin of the glenoid cavity at some point nearer to its lower extremity, or more rarely on the upper extremity of the costa of the scapula just in front of the triceps tendon. Some fibres of the subscapularis muscle are usually torn, while the head often presses below on the circumflex nerve and artery. And when in an old-standing case a false joint is formed it will generally be found to be produced partly at the expense of the glenoid cavity and partly from the venter of the scapula, on which the head will be found resting. The preparation No. 11^B in St. Thomas's Hospital Museum shows the new joint surface formed entirely upon the anterior surface of the scapula. The drawing (Fig. 10) taken from the head of a humerus excised on account of an old standing, painful dislocation, shows the change of form which takes place from the effect of pressure upon it by the margin of the glenoid cavity.

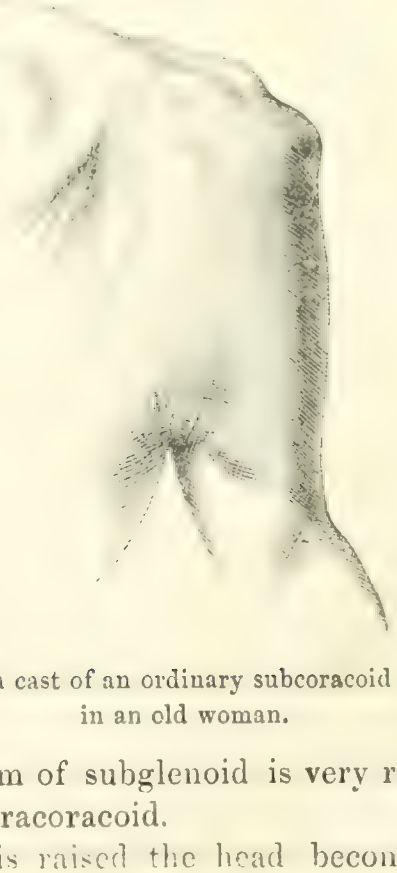
Besides this variation in a vertical sense, the head may travel to a position more or less internal to the coracoid process, or even wholly beneath the clavicle; but I believe it is exceedingly rare for the head to pass wholly within the coracoid process, which, in an ordinary case, usually bisects it, as shown in Figs. 2 and 3.

The amount of inward or outward rotation of the limb, and the degree to which it is abducted, at the time of the accident, of course influences the position primarily occupied by the head, as also the degree to which the capsule is torn. But making allowance for these variations the head, so soon as the limb falls towards the side, rests in the space between the glenoid cavity and the ribs, always below and front of its proper level, as a reference to the skeleton will at once show. When the head of the bone is *in sitû* it is easy to see how thoroughly it is protected against any upward, upward and forward, or upward and backward displacement, by the coracoid, the acromion, the ligaments stretching between these processes, and the back part of the capsule strengthened, as it is, by its muscular insertions. The upper part of the head is covered by a species of acromio-coracoid arch, from which it is merely separated by the tendon of the supra-spinatus, and the subacromial and subcoracoid bursæ. The coracoid process prevents the head being displaced directly forwards, as it is always on a lower level than the upper part of the head, while the long head of the triceps will prevent it passing directly downwards. But below and anteriorly the capsule is comparatively unprotected, and in the interval which exists between the tendons of the subscapularis in front and the triceps and teres minor below and behind, it comes into immediate relation with the cellular tissue of the axilla, where the head of the bone may, under normal circumstances, be readily felt when the arm is raised.

As a rule, then, the primary displacement will be to a position more or less beneath, but anterior to the glenoid cavity, and when no secondary displacement takes place we have the rare form of injury, a subglenoid dislocation, but usually a secondary displacement does occur, the arm descends towards the side of the chest, and the head ascends in front of the glenoid cavity as far as the rent in the capsule will allow it. This secondary displacement may result in a subcoracoid dislocation, or when the rent is small, the dislocation will remain more or less subglenoid.

In Fig. 1 are seen the ordinary appearances of a recent forward dislocation of the head of the humerus. The prominence caused by it is seen beneath the coracoid, also the flattening of the deltoid. The bony points are rather prominent owing to the patients advanced age.

FIG. 1.



A drawing taken from a cast of an ordinary subcoracoid dislocation occurring in an old woman.

The extreme form of subglenoid is very rare, so also is the subclavicular or intracoracoid.

When the arm is raised the head becomes depressed towards the axilla, where it may always be readily felt, in anterior dislocations, in the interval between the subscapularis muscle and the long head of the triceps. It is at this point that the head of the bone when dislocated passes through the capsule in all anterior dislocations, the cause being in a very large proportion of cases a hyper-abduction of the arm, while in others a direct blow upon the shoulder appears to be the cause, generally, however, while the arm is elevated.

I believe a closer investigation into the manner in which falls on the outstretched arm and elbow produce dislocation, will show that the force expends itself in hyper-abducting the arm, the greater tuberosity and anatomical neck are jammed against the upper margin of the glenoid cavity, and in extreme cases the surgical neck may press against the acromion. The head is forced against the weaker anterior inferior part of the capsule through which it is driven by the powerful leverage of the shaft of the humerus at the end of which the force is acting; occasionally the force continues until the arm is vertical, and the head will be displaced for some distance directly downwards where it may remain as the species of exaggerated subglenoid. This has been called the bayonet-shaped dislocation, and was first described by Middledorpf.

When dislocation is produced in the dead subject it can only be done during forcible abduction of the arm. Sir A. Cooper puts the question of cause admirably when he writes, "it is by falls on the hand or elbow when the arm is raised above the horizontal line, or away from the side that the shoulder is dislocated," in other words, by a hyper-abduction, but he considers direct violence to be the most frequent cause.

To illustrate some points of interest connected with dislocations of the shoulder-joint I caused a record of them to be kept, from which it appears that 105 cases occurred at St. Thomas's Hospital during a space of four years. Of these 104 are called "subcoracoid," "subglenoid," and, "into the axilla," varieties merely of dislocation forwards and downwards. One only was subspinous, or downwards and backwards.

The respective numbers are—

Subcoracoid dislocations, two being called partial	82
Subglenoid	13
Dislocations into the axilla	10

In sixty-eight of the cases collected the nature of the violence is specified, and in thirty of these falls or blows directly on the shoulder, while in thirty-eight cases falls on the outstretched arm, or the elbow, or palm, or irregular muscular effort, were the cause. Two cases are very clearly described as produced by hyper-abduction, another was by a very similar kind of force—a sack of grain fell upon the shoulder while the arm was extended at a right angle to the body, the hand resting on a fixed support. Two cases were caused by the effort of casting a stone, both had, however, been previously dislocated. One man dislocated his arm in a fight, he missed his blow while striking out from the shoulder. Another was produced during a back stroke whilst swimming. A woman of sixty said the arm fell out of the socket while she was in bed. There had been two previous dislocations in this instance.

Table of stated causes.

Direct violence—	
Direct injury, not otherwise specified	13
Falls upon the shoulder	15
Weight falling on the shoulder	2
	30
Indirect violence—	
Indirect injury, not otherwise specified	19
Falls on outstretched arm	5
Falls on the elbow	2
Falls on the hand	5
Blow received on forearm while on guard against a blow	1
Missed blow while striking out from shoulder during a fight	1
Throwing a stone (males, 45 and 46); dislocated for 2nd and 5th time respectively	2
Violent twist of arm while stretched overhead	1
Loss of footing while holding on to a beam overhead	2
	38
Doubtful—	
During practice on the horizontal bar	1
Falls from a height	5
Dropped out of socket while in bed	1
Railway collision	1
While drunk	2
	10

The diagram Fig. 2 shows the most common position which

FIG. 2.

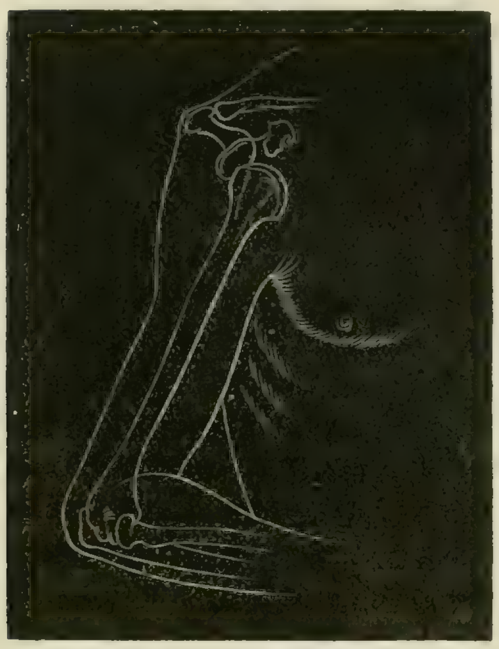


Diagram illustrating the usual position of the bone in a subcoracoid or preglenoid dislocation.

the head of the bone occupies in what might perhaps be called with advantage simply preglenoid dislocation of the humerus, viz. about half an inch below the coracoid, towards which the capsule chiefly prevents it rising further; and the smaller the rent in the capsule is, the greater the resistance to any movement of the head upwards, and the more nearly will the dislocation approach the subglenoid variety. The posterior margin of the greater tuberosity and the anatomical neck rest against the edge of the glenoid cavity. The amount of rotation of the limb has also an important influence on the position of the head of the bone and the projection which it may cause in front of the joint, as a reference to the diagram (Fig 3) will show. The more the dislocation tends to be subglenoid, and the greater the amount of inward rotation, the less manifest will be the anterior projection of the head of the bone, and the more plainly will it be felt in the axilla.

The drawing (Fig 3) is taken from a horizontal section of the scapula and head of the humerus opposite the centre of the glenoid cavity. The position of the coracoid is also indicated. The position of the head in a subcoracoid dislocation is expressed by the plain line, while the dotted

FIG. 3.

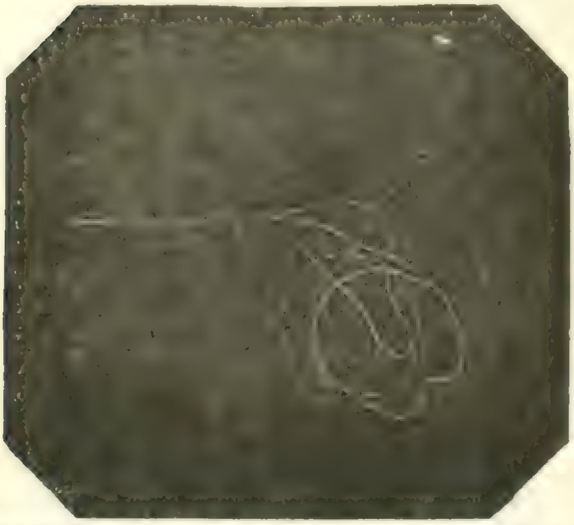
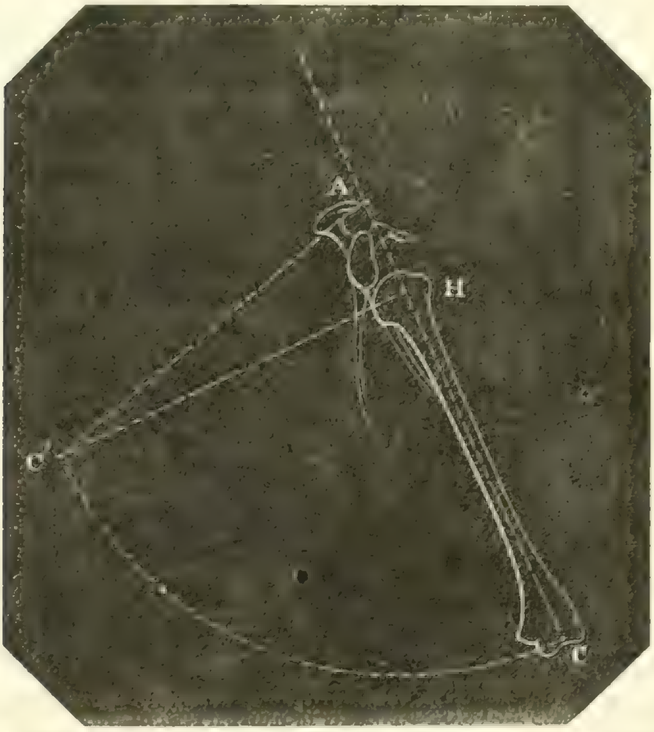


Diagram showing the relations of the head of the bone to the scapula in subcoracoid and subglenoid dislocation respectively.

one is supposed to be on a somewhat lower level, and to represent the position occupied by the head of the bone in the subglenoid variety, being both more internal than the other, as well as less prominent anteriorly.

There is always a real lengthening of the arm, although

FIG. 4.



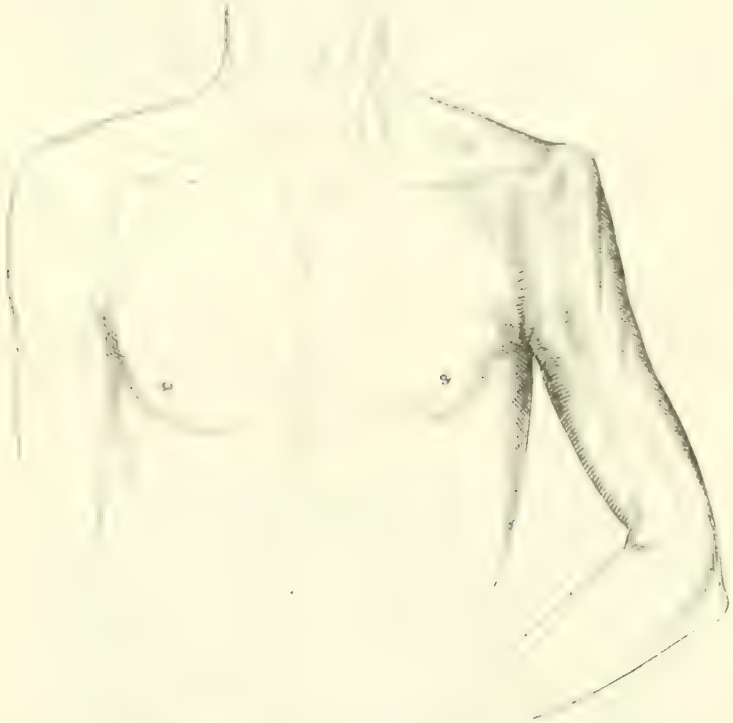
The diagram is intended to show the influence of the amount of abduction upon the measurements taken in dislocation forwards of the head of the humerus.

measurement may make the limbs seem of equal length, or the injured one even appear the shorter. The best way to make the measurements is from the angular projection readily felt on the lower border of the acromion process to the external condyle. The opposite arm should be abducted to the same degree as the injured one, which to some extent compensates the difference.

It is necessary to make allowance for the abduction of the limb which shortens the distance between the points chosen to measure from, as the diagram (Fig. 4) plainly indicates. It is impossible in such a diagram as this, which shows the head of the bone in the position assumed in subglenoid dislocation, to indicate the lines in perspective, but it is nevertheless clear that from A to C is much longer than from A to C′. A is the acromion, C is intended to correspond with the external condyle of the humerus, the other extremity of the interval to be measured. H is the centre of the circle traversed by the elbow from C, where it lies more or less near the side of the chest, to C′ where it is in extreme abduction. The distances from the head of the humerus H to C and from H to C′ are equal, being radii of the circle, but as the elbow becomes more and more abducted, or as C travels towards C′, so does the distance between the acromion and elbow diminish. This, I think, is the explanation of the great discrepancy, as to the existence of shortening or lengthening, or its amount, in dislocations of the humerus.

The so-called subglenoid dislocation is only different in degree from the form before described. The deltoid is more flattened, the arm more abducted, and the lengthening of the limb acquires its maximum, as may be seen in the accompanying woodcut (Fig. 5) taken from a recent example of the injury occurring in an old man. In this patient when first examined the displacement of the head of the bone towards the axilla was so characteristic, and the abduction of the arm so considerable, standing nearly at an angle of 45° from the trunk, that Mr. Makins, the House Surgeon, knowing I was interested in the question, was good enough to send him to my house in a cab, although in charge of a policeman. In that way I was able to make the drawing given in the text, but the man's struggling had probably enlarged the rent in the capsule, and the arm had fallen down in some degree towards the side. Nevertheless there is marked abduction, and an absence of any great fulness beneath the coracoid. The slight prominence caused by the head is on a much lower level, and there is a great degree of flattening and strain of the fibres of the deltoid muscle. In this case there was no resistance offered to placing the arm almost vertically, and then the head formed a subcutaneous swelling on the side of the thorax, while the slightest degree of support maintained the limb precisely in the bayonet-shaped form of dislocation of Middledorpf, giving it the most striking appearance.

FIG. 5.



Drawing of a case of well-marked recent subglenoid dislocation, somewhat modified by the struggles of the patient whilst being examined.

This variety of preglenoid is often seen in elderly women, and one of the causes may probably be the atonic enfeebled muscular apparatus of the joint. Of the twenty-three cases noted in the record as being either sub-glenoid or into the axilla, practically one and the same form of dislocation; the age of one is not stated. Of the remainder, only six were under 50 years of age, seven were between 50 and 70, and four between 70 and 80. Thus sixteen out of twenty-two cases, a large proportion, were over 50. Again, thirteen of these cases were in females, and of these only one was under 50 years of age. Nine were males, five being under the age of 50, and four above, so that this form of injury would seem especially likely to occur in elderly women.

In unreduced dislocations of either kind the constant tendency is to become more and more subcoracoid. The muscles running from the thorax, scapula, and clavicle, to the arm draw the head by degrees closer to the coracoid process, at least, when these muscles are of normal development.

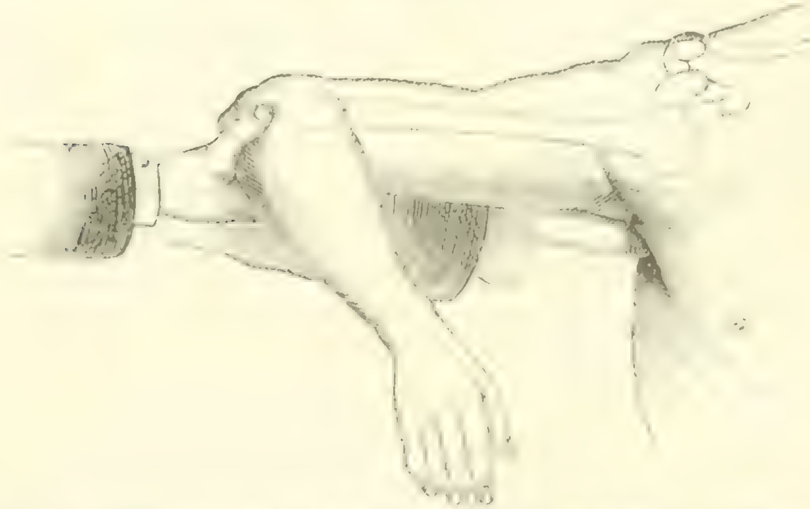
The more carefully the nature of these dislocations and the method of their reduction are studied, the more evident it becomes that the most important factor in determining the position of the dislocated bone, and in opposing ill-considered attempts at reduction, is the capsule, and not the capsular muscles. When a comparatively small opening exists in the capsule extension in the long axis of the limb only serves to tighten the lips of the rent, and further increase the difficulty of reduction.

Dislocations of humerus on the dead subject are almost always accompanied by so large a rent in the capsule that they almost spontaneously reduce themselves, and experiments on the dead body do not produce such definite results as can be obtained in the case of the hip-joint.

The action of the capsule, and the relative unimportance of the muscles is well exemplified in the case of a man brought moribund into St. Thomas's Hospital, with an ordinary recent dislocation of the shoulder, besides other mortal injuries, where Sir A. Cooper after death made a dissection of the parts. The capsular ligament was found to be rent between the subscapularis and teres minor muscles. On attempting to reduce the dislocation in the ordinary way failure ensued. In order to discover the obstacle one muscle was divided after the other —the coraco-brachialis, teres major, and minor, and infraspinatus—but the opposition to reduction continued unchanged. The deltoid was also divided without effect. The arm was then drawn directly upwards in order to relax the remaining muscle, the supra-spinatus, and reduction at once took place. It appears to me that it must have been the capsule, and not the muscles of a dead subject, which thus prevented the return of the bone, and when the arm was raised the head was drawn opposite to the rent in the capsule, which became relaxed and admitted it.

All anterior or preglenoid dislocations when recent may, I think, be reduced with ease by a simple manipulation, the object of which is to bring the head of the bone opposite to the rent in the capsule, and thus make it return to the socket by the way in which it left the glenoid cavity. The first stage of the proceeding is represented in Fig 6. The elbow should be firmly grasped by the operator's right hand, if it be a right-shoulder dislocation, and with the left hand when it is the left shoulder, the fore-arm flexed to a right angle, and the arm raised to the horizontal line. The patient may be seated upon a chair, and the surgeon should in that case stand on one side and rather behind. Steady extension should then be made from the elbow, and the arm at the same time rotated inwards, while the fingers of the other hand should be pushed as high as possible into the axilla, so as to get well between the head and the side of the chest. In this way the head will become disengaged from beneath the coracoid process, and the biceps and coraco-brachialis muscles attached to it, and is drawn opposite to the lower border of the glenoid cavity and the rent in the capsule;

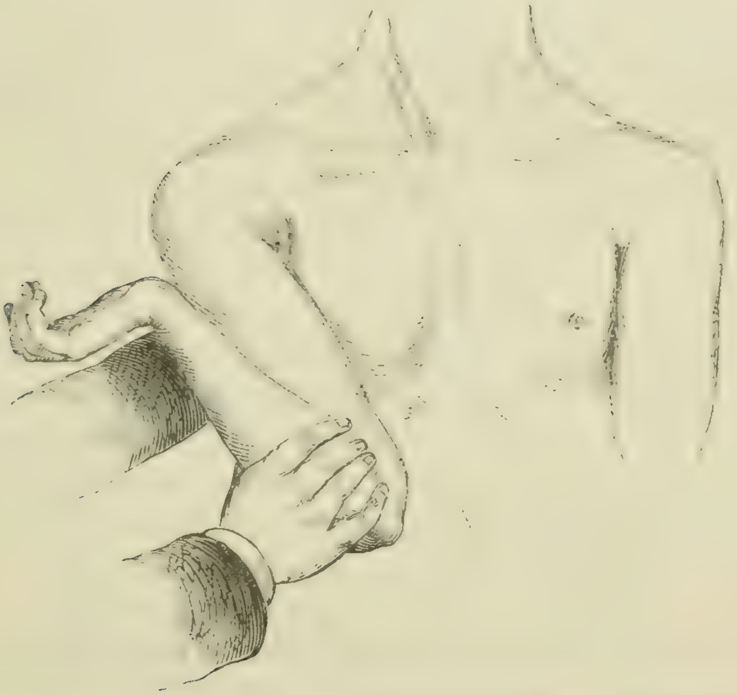
FIG. 6.



The figure represents the head of the bone disengaged from beneath the coracoid process and slightly rotated inwards, so as to come into close relation with the rent in the capsule, while the left hand of the surgeon is introduced as high up as possible into the axilla.

when this has been accomplished reduction may almost certainly be effected by rapidly bringing the elbow across the front of the chest, and rotating the arm strongly outwards at the same time, as seen in Fig. 7. The fingers in the axilla prevent the head slipping back into its former position, and also act as a species of fulcrum. The body may require to be steadied by extension from the sound arm, or in some other convenient way, and the facility of reduction will be increased by an assistant pressing the tip of the shoulder downwards with the ball of his thumb, thus helping to fix the scapula. In some recent cases, and in all of any standing, chloroform must be employed, but in the recumbent position the same manipulations may be carried out. By this plan, for which I claim no originality, but only that it is practically useful, I have many times reduced recent dislocations of the humerus, both with and without the aid of chloroform, in a few seconds, and with very little suffering to the patient. Very often, indeed, no anæsthetic will be required.

Fig. 7.



The drawing represents the conclusion of the manipulation. The arm is rotated outwards, and the elbow carried at the same moment sharply across the front of the chest.

The method has the extreme advantage of proving applicable to many cases of old dislocations. It is free from all those risks which almost inevitably attend the use of the pulleys, as these can only act with great violence, and by lacerating various structures, both the capsule and the capsular muscles, before reduction is effected, while by the manipulations which I have described reduction may be accomplished with none or only the most trifling damage to the soft parts. It is a physiological method, and as much to be preferred to the use of pulleys, as is the similar plan adopted now in cases of hip-joint dislocations. I believe cases of shoulder dislocation may be reduced in this way up to Sir A. Cooper's limit of time. I believe that during twelve weeks, or perhaps longer, the attempt should certainly always be made before resorting to any more violent means. More than one such attempt will probably often require to be made, but no harm can be done by repeated efforts.

I well remember the dread I was in of grave consequences in a case of dislocation of eleven weeks' standing, in a young healthy adult, which I succeeded, however, in reducing, after three attempts with pulleys. The force employed in this instance seemed so considerable, while the effect produced on the position of the head of the bone for a long time appeared quite incommensurate, as it was only after long-continued trials, and at what I cannot but think imminent risk of serious damage to the patient that the result was obtained.

I should resort to the use of pulleys with much reluctance, I think the risks incurred must be often as great as the probable gain, and one cannot wonder at the many and disastrous accidents placed on record as having taken place during attempts by this means. Even the classical heel of Sir A. Cooper is not free from responsibility of producing untoward consequences. I have known cases of severe bruising, and of temporary paralysis. The skin of the axilla has been ruptured and the muscles torn, even, in this way, while the pulsation of the artery has been stopped, probably by bruising or stretching of its coats.

On the other hand I remember returning the head by manipulation in a case of three weeks' standing, which had resisted several attempts by various methods in very experienced hands.

Even in old cases of eight or ten weeks' duration, I have on three occasions succeeded, having first broken down the adhesions by circumducting the arm, in returning the head to the socket in a similar manner.

After reduction the arm should be bandaged to the side, the elbow being drawn well forward on the chest, so that the torn part of the capsule may not be pressed upon. In old cases a plaster of Paris bandage should be applied, in which the shoulder may be left exposed for daily inspection or the application of ice, and if this be efficiently applied there is no chance of the head slipping out of place, which in an ordinary bandage it is very apt to do.

I think it important not to immobilise the joint for too long a period, except in cases of relapsing dislocation, an accident to which this joint is more liable than any. A week is sufficient in recent cases, and a fortnight in a case of several weeks' standing, and this rule is all the more important to observe where the patient is beyond adult life. I have known instances where great difficulty occurred in restoring the functions of the joint impaired by too long confinement. The muscles were wasted, and the adhesions, which had formed in the capsule, the synovial membrane, and surrounding parts, rendered active motion well nigh impossible, and passive very limited and very painful. Under these circumstances the adhesions must be broken down under chloroform, and passive and active movements vigorously carried out, with the aid of galvanism to restore the disabled muscles. When passive motion is commenced early much after trouble will be prevented; care must, however, be taken to avoid any stretching of the cicatrix in the torn capsule, and this may be done by allowing only those motions to take place which tend to press the head against the uninjured part of the capsule. The arm must not be elevated from the side, nor the elbow carried backwards, but moderate rotation, and also carrying the elbow forwards and across the chest may be practised with advantage. Abduction and backward movements may be safely begun towards the end of the third or fourth week. I have known the arm to remain comparatively useless after the reduction of a dislocation of ten weeks' standing in which passive movements were not early enough resorted to, and this in spite of repeated subsequent breakings down of adhesions under chloroform.

While in another case of the same duration passive movements were begun a week after reduction with the best results. The shoulder-joint appears especially prone to become stiff from prolonged immobilisation, even without any, or with only a trifling, antecedent injury, and a foreknowledge of this circumstance may often prove of advantage to the practitioner, as in elderly persons the limb may frequently never perfectly recover itself after a dislocation.

It may seem a truism to say reduction should not be attempted in irreducible cases, yet, strange to say, I have seen the attempt made. One day, leaving the hospital, I chanced to look into the casualty room as I passed by, and there I saw a house surgeon with a very red face, attended by some exhausted dressers, who had been expending their skill and strength in vain upon a dislocated shoulder. "Look, sir," they said, "we have been trying our hardest for the last half hour to get this in, and we cannot manage it." The patient was a middle-aged man in a stupidly drunken condition, who could give little account of himself. On examination of the shoulder, however, I at once perceived the rough crepitation peculiar to a false joint, and at the same time noticed a striking atrophy of the scapular muscles and deltoid. I concluded, therefore, that the dislocation must be one of some standing. By dint of shouting in the man's ear a few times, he at last told us that his shoulder had been out for more than two years, and we therefore decided that any further effort at reduction would be undesirable.

A certain number of cases will either resist all efforts to reduce the dislocation, or they only come under observation at a period when the attempt is not to be thought of. In what I believe is quite the exception the individual may possess a sufficient amount of underhand motion, chiefly by aid of scapular movements, and be free from any serious inconvenience or pain. But there is another class of cases, of which the following is an example, in which the arm is all but useless, is in a state of paresis, and the patient in constant pain from the pressure of the head upon the brachial plexus. The result of the treatment in the present instance shows, I think, that it may be adopted with advantage in similar cases. Indeed, Billroth goes further, and advises resection in preference to even attempting the reduction in some cases of old-standing. In two instances where he succeeded in effecting reduction after intervals of six and nine months the arm continued to be quite useless.

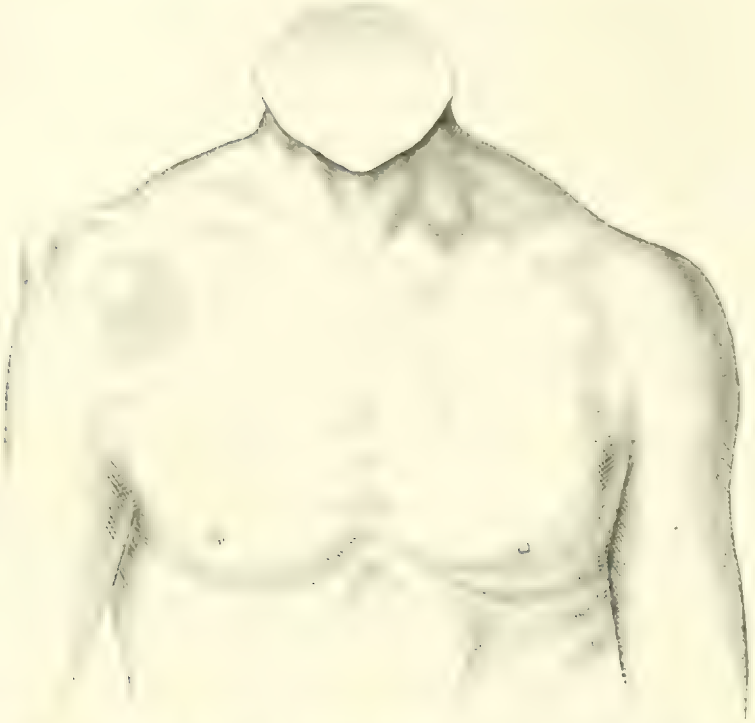
Alfred W—, æt. 30, a marine engineer, was admitted for the second time under my care into St. Thomas's Hospital, on March 19th, 1878. He had previously been my patient in July, 1874, and he then said that fourteen months before, while steaming across the Indian Ocean, he fell on the ship's deck upon the point of his shoulder. He says the captain had a pull at the arm without result, and, that when six weeks later the ship arrived at Sydney, the doctor there said there was nothing the matter, and W— was obliged to resume work although in great pain.

Four months afterwards a doctor in San Francisco said the shoulder was out, but declined to meddle with it. I made, whilst the patient remained under my treatment, three different attempts to reduce the dislocation, but failed. However, the adhesions were thoroughly broken down, and the patient was discharged in the hope he might have a fairly useful limb.

The drawing (Fig. 8) is copied from a cast of this patient's thorax taken when first under my care at the hospital; it fairly represents the appearances of a dislocation forwards when of old standing. The muscles are much atrophied, a condition even more conspicuous when the joint is looked at from behind. The prominence caused by the head is close beneath the coracoid.

Nearly four years later he returned and said his arm was useless, that he suffered pain in it day and night, that he wanted something done to relieve him, for he could endure it no longer, and would gladly have his arm amputated at the shoulder joint, if I so advised. There was tingling pain down the forearm, and in the thumb, index, and middle fingers. The power of grasping was very feeble, the scapular muscles, deltoid, and pectorals were much atrophied. Very slight active movements were possible in the false joint, the scapula moved with the arm, and the hand felt colder than the opposite one. I decided to excise the head, hoping that the patient would thereby be relieved from pain, and that some restoration of useful movement might ensue, even though so long a period had elapsed since the injury. I, therefore, made a curvilinear incision

FIG. 8.



A drawing from a cast of A. W—, showing the appearances present in a case of old-standing subcoracoid dislocation, the wasting of the shoulder muscles, and the head drawn up beneath the coracoid process.

extending vertically over the inner part of the head, commencing above over the tip of the coracoid process, and then raised the soft structures together with the periosteum from the bone, as far as the surgical neck. The long head of the biceps was found still lying in the bicipital groove. Much difficulty was experienced in freeing the head from its connections, and great care had to be taken from its close proximity to the brachial plexus and axillary artery, on which it was lying. The coraco-brachialis and biceps overlapped the head on the inner side. The glenoid cavity seemed quite filled up by the remains of the capsule, and a new articular facet had been formed on the neck of the scapula, and partly at the expense of the glenoid cavity. The groove on the excised head (Fig. 10) shows where it was pressed against by the anterior margin of the glenoid cavity.

The result of the operation was remarkably satisfactory. The severe gnawing and tingling pains in the arm and hand disappeared at once and completely, and the patient made a very rapid recovery. Thymol gauze dressing was used, and no septic change took place in the wound, nor was there any traumatic fever. Three days after the operation the notes say the patient had all the appearance of a man in ordinary health, and the power of grasping had already greatly increased. In a week he was able to be up, and he quitted the hospital six weeks after the operation, the wound being quite healed. The limb already possessed a fair amount of movement, and the man found himself capable of carrying considerable weights, and brushing the ward floor, while lastly, a chief object of the operation was attained, he felt no pain whatever. The direction of the shaft was also altered, it gradually became changed, and now runs up to the glenoid cavity in place of forwards and inwards, as it previously did. I ascribe this alteration in the direction of the shaft mainly to the fact that the operation was performed subperiosteally and the muscular attachments preserved. Galvanism was employed during the after treatment to stimulate the atrophied muscles, and with lapse of time further and still more considerable improvement will, it is to be hoped, ensue. (Figs. 9 and 10 are drawings of the front and back view of the head of the humerus excised in the foregoing case.)

Fig. 9.

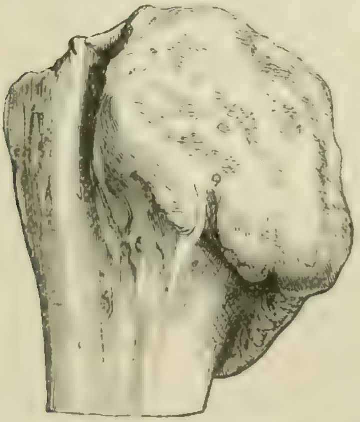
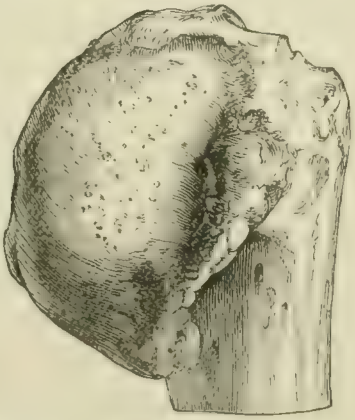


Fig. 10.



Figures 9 and 10 are of interest as showing the changes which occur in the head of the humerus when displaced for a protracted period from the socket. All traces of the articular encrusting cartilage have disappeared, and a lip of newly deposited bone has formed round the margins of the head. In Fig. 9 a broad deep sulcus is seen where the head pressed against the anterior margin of the glenoid cavity, with which it came into close relationship. The anatomical neck must, in fact, have rested against the edge of the glenoid cavity.

Some interest attaches to the period of life at which dislocations of the shoulder occur, as shown in the following table. One case only occurred at the early age of ten in a girl.

TABLE OF AGES.

	M.	F.	Total.
From 10 to 20	—	—	0
,, 20 to 30	10	4	14
,, 30 to 40	21	2	23
,, 40 to 50	15	1	16
,, 50 to 60	15	10	25
,, 60 to 70	5	9	14
,, 70 to 80	4	4	8
	70	30	100

Below twenty, therefore, the accident may be said practically not to occur, except in very rare instances. I know of one other case only, happening at the age of thirteen in a boy. Dislocations of the hip are frequent in young persons, and of the elbow, especially frequent in children. Why dislocations of the shoulder should be so extremely rare is difficult to understand. Probably an epiphysary disjunction at the upper end of the humerus will sometimes be caused by a force calculated otherwise to dislocate the head. In adult life, from thirty to fifty, dislocations of the shoulder are numerous, at all events, in the male; but what strikes one as unusual is the number of dislocations in advanced age. Relatively speaking, and absolutely as well, this would appear to be largely in excess of the proper proportion. One fourth of the total number took place between fifty and sixty, an age when fracture, at least in other parts of the skeleton, is much more likely to occur than dislocation. Between sixty and seventy the large proportion of fourteen is recorded, and as many as eight occurred between seventy and eighty.

Another noteworthy point is that, while under fifty the accident appears to be somewhat rare in the female, over fifty it is relatively frequent, while the converse holds true as regards men, thus,

	Male.	Female.
Between 20 and 50	45	7
,, 50 and 80	24	23

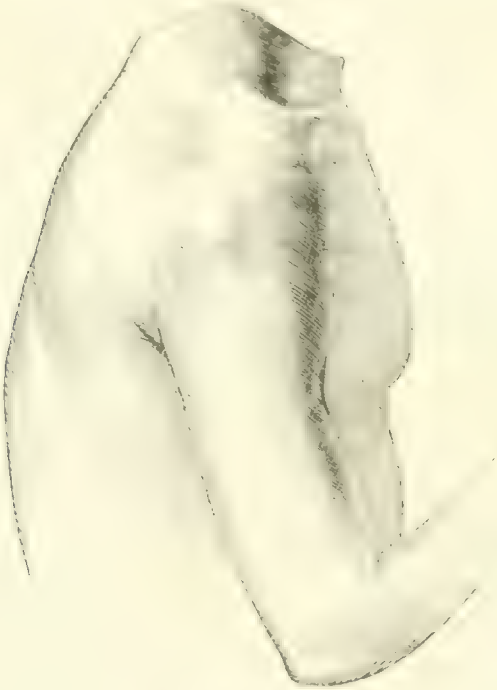
The greater muscular laxity, as already stated, in the elderly female being probably one reason for this striking difference.

Only one example of infraspinous or backward dislocation occurred during the four years. Mr. Nicholson the then house surgeon has accurately described it.

Case of posterior dislocation.—"A cab-driver, æt. 76, was seated on his box when his horse took fright, and he was thrown forwards, striking the ground with the front of the left shoulder. When seen immediately after the accident there was a most distinct rounded swelling over the scapula, just below the spine, and at the point where this joins the acromion, while there was a deep depression beneath the acromion. The arm was carried forwards and away from the side, while the forearm was semiflexed and pronated. Reduction was most easily effected by bringing the arm to a right angle with the body, and gently drawing upon it, while the scapula was fixed with a jack towel, the head sliding gradually into its place. The arm was kept at rest for twelve days by means of a four-tailed bandage over the elbow, and then passive motion was employed."

In another case of this rare injury which came under my observation, the injury was produced by indirect violence. A gentleman whilst crossing the street was knocked down by the pole of an omnibus coming sharp round a corner, and striking him from behind on the right side. He states he fell forwards on the left side somewhat prone, striking violently the inside of the elbow against the ground, on which he believes he received the main force of the fall. There was much ecchymosis on the inner side of the elbow, but no evidence of contusion of the shoulder itself. The region of the shoulder was somewhat swollen, and at first glance nothing very noticeable was observed on the anterior aspect of the joint. The elbow was advanced, and abducted from the side, to which no reasonable force could bring it much nearer, excesssive pain was complained of, and the mobility of the limb was greatly impaired. On turning the patient a rounded, almost subcutaneous, prominence could at once be seen and readily felt below the spine of the scapula. The shaft of the humerus was directed towards this prominence, and both moved together on moving the elbow. In front of the joint there was a depression, and by pressing deeply into it the glenoid cavity could be felt to be empty. A further examination was made when the patient was under chloroform so as to remove any possible doubt, and then the limb was raised to the horizontal line, rotated inwards, and with a very small amount of force the head returned to the glenoid cavity with an audible snap, and the abnormal fixity of the limb at once disappeared. The great pain which had been experienced by the patient, probably from pressure upon the circumflex nerve, at once disappeared with the reduction of the dislocation. While recovering from chloroform the patient again put his shoulder out, but it was readily replaced, and the arm then fixed to the side with the elbow well drawn back. Complete recovery of arm function followed.

FIG. 11.



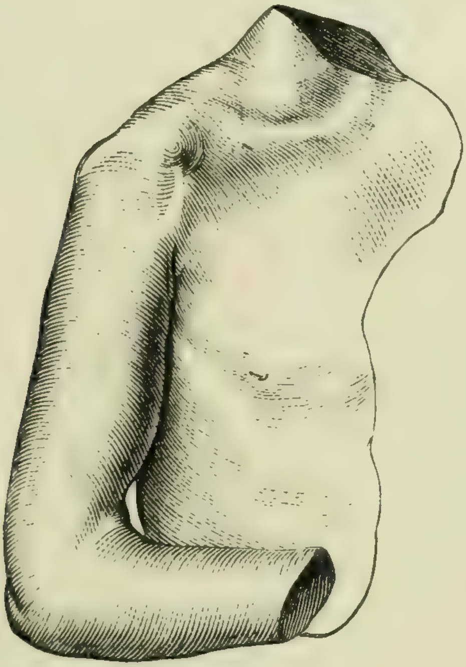
SIDE VIEW.

Fig. 11 is an accurate drawing taken from a cast of a congenital dislocation backwards in a child. The prominence formed beneath the spine by the head of the bone is quite distinct. The elbow is slightly advanced and abducted.

There are according to Malgaigne two varieties of backward dislocation which he calls respectively subacromial and subspinous. The former term is badly chosen as it rather describes the normal position of the head of the bone. It means, however, that the head lies closer to the margin of the glenoid cavity, and this is the more frequent form of the dislocation. Of thirty-four cases collected by Malgaigne thirty-two were of this kind, only two were infraspinous, or where the head was further displaced from the glenoid cavity, a variety corresponding with the rare form of forward dislocation called subclavicular.

The usual position of the head, and the appearances this dislocation presents, are adequately represented in the accompanying drawings (Figs. 11 and 12) taken from a cast of a congenital dislocation in a child of ten years. The deformity was first observed very shortly after birth. The prominence of the head, underneath the spine of the scapula, is distinctly seen. The depression in front of the joint is well marked. The acromion does not show so much undue prominence, with flattening of the shoulder in profile, as is observed in preglenoid dislocations. The antero-posterior diameter of the

FIG. 12.



FRONT VIEW.

Fig. 11 shows the front view from a cast of the same congenital dislocation. The depression between the coracoid and acromion is well marked, as also is the prominence caused by the projection of the muscles attached to the coracoid process.

shoulder is increased, another feature distinguishing this from the preglenoid form, where it is invariably diminished. The appearances in this case very precisely correspond with drawings of cases of traumatic subspinous dislocation given by Busch, in 'Langenbeck's Archiv,' vol. xix.

The child had been brought to me by its parents in order that the shoulder might be reduced. The proposal was of course not entertained. There was very good motion in the false joint. The arm could not, however, be abducted.

Dislocation backwards of the humerus is very rare. Sir A. Cooper states that in a long practice of thirty-eight years he only saw two such cases. J. L. Petit mentions that he had never met with one, while Baron Boyer writes of one case only which he observed. Professor Busch, on the other hand, has recorded four which came under his notice; two were in females and two were in males. In the former the accident occurred to both in a similar fashion—a violent blow of the fist inflicted by their husbands on the front of the joint. The other two were produced by irregular muscular effort, one of the cases being in a boy of ten; perhaps this was in reality a congenital dislocation like my own. Busch points out that the shoulder-flattening is situated between the acromion and coracoid, and is more or less deep, according to the greater or less amount of displacement backwards of the head, while running vertically we may notice a ridge caused by the tension of the muscles attached to the coracoid. The marked pronation of the forearm, mentioned by some authors as being present in this form of injury, did not occur in any of Busch's cases, nor in mine. The arm was pronated in Mr. Nicholson's case.

Reduction in these cases is easily effected, but there is a great tendency to relapse. Relapsing cases are frequent amongst those recorded. The subscapularis muscle is probably often torn off and the rent in the capsule extensive.

It is stated in a recent admirable text-book on surgery, speaking of this form of dislocation, that there is "flattening of the deltoid and prominence of the acromion, as usual," and that "the elbow will be drawn close to the side." Now, the arm, on the other hand, is distinctly and markedly abducted, and cannot without considerable force be brought to the side, while, as before stated, the flattening of the deltoid is not at all of the usual kind.

I have never seen any example of the *luxation sus-acromiale* of Malgaigne nor of the truly subclavicular variety, nor yet the *luxatio humeri erecta* of Middledorpf, who describes two of these strange cases in the 'Clinique Européenne.' The arm formed an angle of 140 degrees with the thorax, the head of the bone projected opposite the middle of the free border of the pectoralis major, and stretched over it were the artery and brachial plexus, while the shaft of the humerus rested against the acromion and coracoid processes. Not inaptly has it been called " bayonet-shaped." Professor Busch has described another similar case in 'Langenbeck's Archiv,' vol. iv.

CASES IN OPHTHALMIC PRACTICE, WITH NOTES AND OBSERVATIONS.

By EDWARD NETTLESHIP,
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I.—Cases of Syphilitic Choroido-Retinitis.

The cases of choroido-retinitis given below are recorded in illustration of the following among other important points in the natural history and prognosis of this grave but rather rare manifestation of secondary syphilis:—

1. Syphilitic retinitis is so often associated with demonstrable choroiditis, that, in those cases where no choroiditis can be proved, it is highly probable that this condition is present, either in a degree too slight to cause positive changes, or in parts of the fundus which cannot be reached in ophthalmoscopic examination.

2. The choroiditis here referred to generally affects only the inner (capillary) layer of the choroid, and the pigment epithelium. The ophthalmoscopic changes produced by it are comparatively slight, and sometimes escape notice unless carefully looked for. It may occur at any part of the fundus. Sometimes it appears to be localized in a zone around the optic disc, whilst occurring separately in other parts; in other cases the disc is situated in a large unbroken area of choroidal disease.

3. These facts, together with the close dependence of the outer layers of the retina on the blood-supply of the chorio-capillaris, make it probable that the retinitis of syphilis is in a very large number of cases, if not always, secondary to superficial choroiditis. The occurrence of neuritis with the retinitis is readily accounted for in the same way, for the disc is to a large extent

supplied with blood by the choroidal vessels; and hence any active change in the choroid where it surrounds the disc is very liable to extend into it.

The degree of neuritis accompanying the retinitis is subject to considerable variation; as a rule, it is expressed by slight haziness, but patches of opaque white lymph are sometimes seen: there is seldom much swelling.

4. Syphilitic choroido-retinitis is almost always symmetrical, and sometimes even affects almost exactly corresponding parts of the two eyes. It always begins in the secondary stage, though as a rule rather late, *i.e.*, when the sore throat, skin eruption, and iritis are declining; I believe it never sets in later than about eighteen months after the primary disease, and commonly it is a good deal earlier. It occurs quite independently of iritis. When both diseases come on in the same eye the iritis generally precedes the choroido-retinitis, but sometimes the order of events is reversed.

5. In this form of choroiditis large patches or areas of the choroid suffer superficially, and the atrophy which follows absorption of the inflammatory products affects only the innermost layer of the membrane. Other cases of syphilitic choroiditis are seen with smaller patches abruptly circumscribed, and involving the whole thickness of the tissue, the resulting atrophy being complete; these are, as a class, much less formidable, because the nutrition of the retina is less interfered with; indeed they are, I believe, seldom accompanied by retinitis of the diffuse and generalized form met with in the cases which supply the matter for these remarks.

6. It is well known that syphilitic retinitis shows a remarkable tendency to relapse many times during its course. To this we must add that, besides the temporary exacerbations, it often progresses slowly through many years to a condition of atrophy, with shrinking of the retinal blood-vessels and accumulation of pigment, especially in their sheaths, so that finally the appearances bear a certain resemblance to those of true retinitis pigmentosa. It is probable that these degenerative changes are, in the main, commensurate with the severity and extent of the choroiditis.

7. The defect of sight in early stages is often greater than would be expected from the very slight degree of retinal haze found on ophthalmoscopic examination. There is, even at a

comparatively early period, a marked tendency to diminution of the retinal arteries, contraction of the visual field, and night blindness.

8. Inflammation of the vitreous is a common but not invariable consequence of the choroido-retinitis. The fact is often shown by the presence of large slowly moving opacities, or of numerous very small ones. But in other cases the vitreous, without containing any opacities which are separately visible even on most careful examination, and without losing much of its translucency, becomes so hazy that none of the details of the fundus can be seen, although the general red reflex from the choroid is but little diminished. We must suppose that in these cases there is a uniform infiltration with cells, or with fluid which, without being opaque, differs widely in refractive power from the vitreous itself, and breaks up the light somewhat as happens when two such fluids as glycerine and water are shaken together. It is most likely that rapid alterations in the state of the vitreous, perhaps in its outermost layer in the region of the optic disc, account for the frequent and often very rapid alterations of sight in cases of syphilitic retinitis.

9. Mercurial treatment is often followed rapidly by brilliant and probably permanent results in syphilitic retinitis. But in not a few cases mercury, though carefully administered for many months, or even much longer, fails to prevent the disease from passing into the degenerative type above mentioned. In my own experience the most intractable cases have been in patients who have contracted syphilis rather late in life, or in women who showed signs of early senility.

10. In these unfavourable cases the eye disease has not, so far as I have seen, been accompanied by intractable syphilitic symptoms elsewhere; and the other secondary symptoms, though well marked and sometimes decidedly bad, have shown no excessive severity.

11. It would be interesting to note whether the superficial form of choroiditis is ever serpiginous. It has never occurred to me to observe that it was so, but careful diagrams of the diseased areas taken at different dates would alone decide the point. The sinuous map-like outlines of the patches are often exactly like those of serpiginous tubercular eruptions on the skin. It is interesting to note, in regard to treatment, that the

local use of mercury, which is often very important in the cure of the more chronic skin syphilides, cannot be brought to bear on the choroid.

Case 1.—*Syphilitic Retinitis and Inflammation of Vitreous in a highly myopic woman. A three months' course of mercury. Unfavourable progress. Note of condition a year later.*

Jane I—— had syphilis at æt. 42, and was for about three weeks under treatment for the skin eruption at the Blackfriars Hospital, whence she was sent to the South London Ophthalmic Hospital by Dr. Baxter early in *February*, 1877, on account of her eye symptoms. She had taken mercury and iodide for three weeks.

I found that she was very myopic (more than $\frac{1}{3}$) in each eye, but with an amount of defect which was not accounted for by the myopic changes. A few days later, *February* 12th, her sight was still worse in the *left*, and on more careful examination I obtained the following results :—

L. eye.—Well-marked diffuse retinitis, without opacity of media and without hemorrhages ; a myopic crescent ; some doubtful choroiditis at the upper periphery. R. eye.—A large myopic staphyloma entirely surrounds the disc ; some small spots of choroidal disease, which may be either syphilitic or caused by the myopia, between the disc and the yellow spot.

To continue mercury (gray powder in two-grain doses three times a day) and iodide, but both in rather larger doses than she has been taking at the Skin Hospital.

February 19*th*.—Gums swollen and tender ; omit mercury.

March 3*rd*.—V. worse, especially in R. It has varied several times in the past week. R. barely 16 Jaeger at 4″ ; L. barely 10 Jaeger. Vitreous of each now full of fine films. In the R. there are some small whitish spots in the *retina* in a horizontal direction from the disc to the yellow spot, in addition to slight choroidal disturbance. Disc rather pale in each eye. Pupils large and sluggish, though no atropine has been used. Continue mercury once a day.

14*th*.—Salivated. Mercury omitted. 19*th*.—Mercury resumed and quinine added. Aching of the eyes, which throughout has been troublesome, is now worse, and there is some photophobia. Pupils as on 3*rd*. Wear a shade.

April 3rd.—Iodide increased from five to ten grains.

17*th.*—V. much better all day.

18*th.*—V. failed again.

28*th.*—Has now taken mercury for ten weeks at least, with the exception of two intervals each of about a week. Omit mercury and iodide for two weeks.

May 14*th.*—V. barely letters of 16 J. Pupils still large and sluggish. Mercury resumed. I did not see her again until I began work at St. Thomas's, when I found her attending among the old cases. She had not, whilst at St. Thomas's, taken anti-syphilitics. Her sight and the ophthalmoscopic changes are about the same as when I saw her last a year ago. Still subject to variations of sight.

CASE 2.—*Severe symmetrical disease of Vitreous with Choroiditis, and probably Retinitis, at an early stage of Secondary Syphilis. Keratitis punctata in one eye; Iritis following the deep-seated disease in the other. Cortical dotted Cataract. Nearly two years' treatment by mercury and iodide; condition not permanently improved.*

Mary O——, 50, married, a laundress, had syphilis from her husband early in the spring of 1876 with sore throat, sore tongue, and a few spots on the arms.

On *June* 13*th* she came to the South London Ophthalmic Hospital, complaining that for three months she had had a "flittering" or "cobweb" before her sight. There were many bald patches on her tongue, and a few dusky stains on the fore-arms (but more on the backs than the fronts).

V. { R. eye, 20 Jaeger.
L. eye, counts fingers, but only by moving her head about.

Pupils act slightly.

R. eye.—Vitreous full of large floating bodies. Slight keratitis punctata, with brownish dots placed rather above the centre of the cornea. A few peripheral striæ in the lens.

L. eye.—Vitreous as in R. Many striæ and numerous small specks in the cortex of the lens, extending over the pupillary area. No iritis nor keratitis punctata. The fundus can be seen in both eyes, but very dimly.

June 24*th.*—She thinks her sight worse. The vitreous was now so hazy that no details whatever of the fundus could be seen; the vitreous appeared to be full of fine "dust-like" opacities, for only a very few of the large films visible at the former date could now be seen.

July 1*st*.—There is now iritis in the L.; an adhesion and slight ciliary congestion.

August 25*th*.—V. very little better. L. eye examined under atropine. Abundant, dense, beaded strings in the vitreous. Many patches of choroiditis disseminata at the lower part of the periphery, some atrophic, others apparently in the exudation stage. Disc doubtfully pale, and retinal vessels slightly diminished.

October 10*th*.—Complains that her sight varies on different days.

November 14*th*.—V. letters of 16 Jaeger.

December 12*th*.—Worse; cannot make out 16 Jaeger.

March, 1877.—Sight has again relapsed.

May 15*th*.—Spells 16 Jaeger.

July 17*th*.—V. had been much better, so that she could see to do her ironing. A few days ago it again relapsed, and to-day she can barely spell 16 Jaeger.

November 13*th*.—V. again dimmer for the last few days.

April 16*th*, 1878.—V. had been much better lately until to-day; to-day (a very dull day) she sees only 16 or 18 Jaeger.

She is a dark complexioned, thin, rather small woman, and has long ago lost all her teeth.

For the first fifteen months of her attendance she took gray powder, in from two to three-grain doses, sometimes twice, sometimes thrice daily, without intermission. Since July, 1877, the dose has been reduced to one grain daily. She has also almost uninterruptedly taken iodide in from five to ten-grain doses. Small doses of quinine were also given for a considerable time. She is still (July, 1878) under treatment.

CASE 3.—*Symmetrical Retinitis late in Secondary Syphilis. Choroiditis. Frequent variations, but on the whole, steady and great deterioration in spite of very prolonged mercurial treatment.*

Mrs. D,—— dark complexion, suffering habitually from cold feet, and looking more than her age, had syphilis fully at the age of 34. Her retinitis appears not to have set in until about eighteen months afterwards, and I first saw her at the hospital at the beginning of *October*, 1876, when her sight (already defective from corneal opacities) had been failing, especially in the R. eye, for about three months. She was then 36. There were central nebulæ on each cornea from former ulceration, and an artificial pupil had recently been made in the L. eye.

On admission, October 2nd, 1876.—V. of R. eye, 10 Jaeger at 8″. and $\frac{20}{200}$, very slightly improved by + 40. L. eye.—No note of precise vision.

Sight stated to be much worse at night. Defect much greater than would be accounted for by the corneal opacities.

Well-marked plum-bloom haziness of each retina in the optic disc region. Some dull mottled blotches, apparently indicating recent choroiditis, at the periphery. Vitreous clear.

January 22nd, 1877.—L. eye worse for about a week past; she now cannot see so well with it as with the R. She can now hardly see to find her way about.

July 23rd.—Relapse in R. eye for about ten days past; V. much worse. Retina very hazy all around the disc. Has had no mercury for two to three weeks.

October 8th.—V. worse again for the last week. For a month before that, it had been so much better that she had been able to do needlework. She attributes the relapse to having left off mercury for a week. Sometimes has a good deal of pain in the temples.

February 18th, 1878.—Much worse the last two weeks; can hardly guide herself even by daylight. Much haze of the retina at the central part of the fundus in both eyes; in the R., the haze extends in parts as far as the periphery. Taken into the hospital.

March 11th.—V. much improved in daylight, but visual field contracted that she still cannot walk about safely. With each eye she can make out words of Jaeger 10 (was never a fluent reader).

March 18th.—Since the *14th*, the L. eye has been almost blind again, and the R. much worse. Has had "a sort of fluttering before the eyes" and some frontal headache, but no pain in the eyes

$$\text{V.}\begin{cases}\text{R. barely letters of 18 Jaeger.}\\ \text{L. shadows only.}\end{cases}$$

Fundus in each very hazy, especially in the L. No proof that the vitreous is hazy in either eye. Is slightly salivated.

May.—She is still under care.

Treatment.—Mercury (gray powder) in varying doses, has been continued during the greater part of her eighteen months' treatment. She is easily affected by it, and has been repeatedly salivated more or less.

When much salivated she has generally left off the mercury for a short time; since January last it has been continued in one-grain doses, from one to three times daily without interruption. Iodide of potassium (from five to fifteen-grain doses) was given for the first year. For the last few months she has been taking iron instead of the iodide. Small doses of quinine were given, in combination, for some time.

Her health has not suffered in any marked degree; indeed, she has improved in appearance since the iron was substituted for iodide. There have been no other syphilitic symptoms, except some sores on the tongue, whilst under my care.

CASE 4.—*Symmetrical diffuse Choroiditis with Neuro-Retinitis, early in Secondary Syphilis. Deterioration of Sight. Relapses of Ulcerating eruption and birth of a still-born fœtus whilst under anti-syphilitic treatment. Cortical dotted Cataract.*

Mrs. S——, 38, dark complexion and hair, had primary disease about July or August, 1876. Her constitutional symptoms began about September with great pain and some swelling of the R. elbow and hand; "rheumatism," (she had never before had rheumatic symptoms). Then she had a rash "like small-pox," chiefly on the head, in the armpits and between the toes, with abundant falling of hair, sore throat, and (from description) condylomata at the anus, and her eyes inflamed, and the sight failed. She was treated at the Waterloo Road Dispensary, but I could not ascertain whether she took mercury.

She came, on account of her sight, to the South London Hospital on *Nov. 6th*, 1876. There were still sores at the angles of the mouth. She had lost much flesh since her illness began. There had been no material pain in the head.

The eye symptoms began from one to two months before I saw her, *i.e.*, probably within three months of the chancre. At first both eyes were "inflamed," and there was some gummy discharge. Then the sight failed, especially in the R. eye, but without any special variations from day to day.

On admission.—V. 16 Jaeger barely, with each eye, but better with the L. than the R. Pupils active, and no traces of iritis discoverable after atropine. In each lens numerous very white opacities just beneath the capsule towards the equator, most abundant at the temporal side in each; the opacities are not pointed striæ with hard outlines, but rather oblong spots, blunt or rounded at each end and with rather woolly borders. Diffuse neuro-retinitis and extensive choroiditis in both. Discs slightly swollen and very hazy, the haze extending for some distance into the retina, the yellow-spot region looking slightly "dappled." Retinal veins a good deal distended and tortuous; arteries considerably diminished. All these changes more marked in the R. eye, where the colour of the disc was changed to a grayish-yellow and a patch of whitish lymph was present on its surface. There were no hemorrhages. The peripheral parts of the retinæ were quite clear.

The *choroiditis* was shown by the presence of large tracts, or of partly confluent grayish-yellow spots, over which the pigment epithelium was collected into little black dots, which contrasting with the paler back-ground, gave the impression of coarse pepper; occasionally the pigment was arranged in somewhat linear figures. The disease was chiefly in the equatorial region and its anterior limits could seldom be reached; in each eye one tract of it reached nearly up to the disc; a certain tendency to arrangement in *antero-posterior* sectors was observed. In the L. eye one or two whitish patches were present close to the *y.s.* There was nowhere any exudation *upon* the choroid nor any proof that the diseased areas were raised; but the varying tints of the choroidal stroma exposed by the disturbance of the pigment epithelium,—in some parts grayish, in others yellower or whiter,—made it probable that though partial atrophy had set in, there was still interstitial exudation in many parts. At this date I noted, "it will be interesting to see whether the retina over the diseased areas becomes atrophied and pigmented."

The state of the vitreous was not actually recorded till some days later, when it was found quite clear in both eyes; I have no doubt it was equally clear at the first examination.

January 16th.—V. neither worse nor better.

August 14th.—V. barely 10 Jaeger; it has been, and still is, liable to vary on different days, sometimes in one eye, sometimes in the other. It is much worse at night, so that she dare not then go out alone. She has just been confined of a dead *7th mo.* child, and has had some fresh ulcers at the back of the scalp.

January 5th, 1878.—V.—R. eye, letters of 16 Jaeger.
L. barely letters of 20 Jaeger.

She is now under the care of Mr. Waren Tay, at the Blackfriars Hospital, for ulcers on the left leg.

Ophthalmoscopic examination :—

R. eye.—O.D. still somewhat swollen and streaky ; retinal arteries moderately diminished. Retina at *y.s.* still rather hazy. The choroidal disease appears not to have extended, and though it comes up to the border of the *y.s.* region, has not invaded the *y.s.* itself.

L. eye.—O.D. practically healthy and retinal vessels not materially altered in size. The choroidal disease much less abundant than in the R., the greater defect being probably due to the little patches originally noted at the *y.s.*

My notes, made independently at this examination, state that the choroidal disease is shown mainly by abundant spots and dots of black pigment on a ground-work of general epithelial denudation ; that some of the pigment is in angular figures, and that much of it is probably in the retina. The distinct tendency in the R. eye to arrangement in sector-like figures corresponding to the retinal circulation is again noted.

Treatment.—She took mercury in small doses, from admission till the end of September, 1877, with the exception of a few weeks, *i.e.*, in all for about eight months. She was easily salivated and purged. She also took iodide in five-grain doses during almost the whole time. She is, I believe, still taking specifics for the ulceration of her leg.

CASE 5.—*Severe symmetrical Choroiditis (with Retinitis in one eye), in the Secondary stage of Syphilis; Congestion of eyes in the early stage. Patient, an old woman.*

Elizabeth W. had syphilis rather severely at æt. 67, the evidence being that the chancre was on the cheek, and accompanied by much enlargement of the submaxillary lymphatic glands.

Sep. 30*th,* 1875, æt. 67, admitted under my care at the Blackfriars Skin Hospital, with a fading secondary papulo-tubercular rash, ulcers on the tongue, and ulceration and enlargement of the tonsils. Her hair had fallen out, but grown again. The sore in the cheek occurred eight months ago, and the submaxillary bubo suppurated, and left a scar. She stated that for a fortnight past her sight had been failing; there was on admission some congestion, chiefly conjunctival, but no evidence of iritis. She took mercury (two-grain doses of gray powder twice a day) for several months, though as she attended at rather long intervals I do not feel sure that the course was quite unbroken.

April 20*th,* 1876.—She still complained of defective sight, especially in the R., and I therefore sent her to the South London Ophthalmic Hospital, and made a careful examination two days later.

$$\text{V.}\begin{cases}\text{R. shadows.}\\ \text{L. 4 Jaeger with her spectacles.}\end{cases}$$

Pupils active. After atropine, no trace of iritis.

R. a central nebula of cornea from a scratch 15 years ago, since which the eye has been defective. Slight nuclear haze of lens. Many thin webs floating in the vitreous. O.D. slightly pale and hazy; the retinal arteries and veins decidedly diminished. Very extensive choroiditis disseminata in large patches, many of which have become confluent. The disc is entirely surrounded by diseased choroid. It is all in the atrophic stage, but the atrophy for the most part affects only the chorio-capillaris; only here and there is it complete. Considerable pigmentation.

L. Media clear, excepting very slight haze of lens. Choroidal disease as in the R, but less extensive, and not involving the *y.s.* itself. A portion of the disease is still in the exudation stage, whitish and hazy, the overlying retina not being materially altered. O.D. little, if at all changed, and retinal vessels normal. (Compare Liebreich's Atlas, Pl. V., Figs. 1. and 2.)

She lived in the country and could not come again, but I directed her to continue the mercury for a considerable time longer.

Her case is also of interest as probably an example of syphilis propagated through a family,—from father to wife, children and grandmother—by contagion from the mouth, an occurrence seldom seen in this country. The patient, who lived with her married daughter in a country village in the west of England, and who from first to last had not the slightest idea of the nature of her malady, gave the following history :—Her son-in-law had a sore on one finger (attributed to a dog-bite) ; the finger was bad for several months, and the man had spots on the skin and a sore mouth. His wife next had a similar rash and sore mouth, and subsequently, at different times within about two years of the father's disease, four of the children suffered from what appear to have been syphilitic sores on the tongue. The patient had gone to live with the family about ten months before I first saw her, and it was after about two months' residence that she had the sore or "abscess" in her cheek, and the submaxillary bubo which preceded her own syphilitic rash and choroido-retinitis.

CASE 6.—*Symmetrical Syphilitic Retino-Neuritis, with progressive failure of sight. Duration of disease probably two years. No improvement under a four months' mercurial course. Central Choroidal disease in patient's father.*

John S., 39, a soldier, came under care in *November*, 1876, for defective sight dating about two years back ; his sight was especially bad at night, and the defect had increased lately, so that for four months past he had been excused from duty. With both eyes open he could manage to see 8 Jaeger, but with each separately he could only puzzle out words of 10 Jaeger.

There was diffuse haziness of the retina and optic disc, with pallor of the disc ; the haze involved the *y.s.* in each. In the R. the retinal arteries were considerably diminished ; but in the L., where the retinal haze was considerably less, they were but little altered. There was some rather doubtful choroiditis in both. In the R. vitreous were a few slowly moving dots. There were the remains of iritis in both eyes, and he gave the history of an inflammatory attack two years ago, at which time the sight began to fail.

There was no other evidence that he had had syphilis, but he admitted frequent risk of contagion.

He took mercury regularly for four months, and was at one time slightly salivated ; his sight remained exactly the same when last seen.

His father, æt. 75, was under notice at the same time with choroiditis of a very gross kind at the *y.s.* region of each eye, dating from ten years back, and with the history of sudden failure. There was no reason to think it syphilitic; it was very probably caused by hemorrhage.

CASE 7.—*Symmetrical Choroido-Retinitis in Secondary Syphilis, whilst under treatment by mercury; progressive failure, with variations, during many years. Great pigmentation of sheaths of Retinal veins. Myopia. Inflammatory symptoms in the early stage.*

Fanny T., a very intelligent woman, corpulent and nervous, had syphilis with rash, sore throat and sores in the mouth, at the age of 30. She also had inflammation of the L. eye with much pain and redness; it was probably a sort of cyclitis accompanying the choroiditis, &c., to be described below, for, by the most careful examination, I failed when I saw her, to find the least trace of a former iritis.

She took mercury (blue pill) for nearly two years under the care of a well-known practitioner, and it was while under treatment that her sight began to fail in both eyes. It was, from the beginning of the failure, worse at night. The failure continued, apparently with periods of improvement, until she came under my care in *October*, 1876, at the age of 42, twelve years after her primary disease.

She now applied because the sight had become decidedly worse during the past six weeks; so that whilst, till then, she had been able to read and write a little by artificial light, she could now no longer do so. She has had no children since her syphilis.

There had been no other syphilitic symptoms, nor had she had any relapses of inflammation in the eyes. She had been in the habit of taking a course of her mercurial pills whenever her sight was worse, and believed that they did good; she thought that latterly they had lost their effect.

On admission.—V.—R. eye, 6 Jaeger held very close not $\frac{20}{200}$; with $-18 = \frac{20}{50}$.

L. eye counts fingers, on the temporal side only.

Very abundant old superficial choroiditis disseminata in both eyes, with pigmentation of retina. In the R. eye the disc is of good colour and the retinal vessels are unaltered; the choroidal disease is extremely abundant in all parts of the fundus including the *y.s.* region, in the form of round patches of epithelial denudation with incomplete atrophy (atrophy of chorio-capillaris). The special feature is that all the retinal veins are encased and nearly concealed by pigment from a distance of two or three disc breadths from the disc as far as they can be traced towards the periphery; the vessels do not appear to be contracted in calibre. The ensheathing pigment gives off little processes on each side, which project into the neighbouring patches of choroidal disease, and many of these are curved or looped; the whole appearance may be compared to a line of partial fracture in glass, or some kinds of stone where little conchoidal splinters border the whole length of a large crack. None of the arteries are pigmented. In the L. eye the choroido-retinal changes were similar, but less extensive; the disc, however, was very pale and its margins irregular, evidently from former neuritis, and at the *y.s.* there was a gray-white patch of fibrous tissue on the choroid, showing that the choroiditis there had been very severe; the retinal arteries were somewhat diminished. In neither eye was there any *generalised* pigmentation of the retina between the large vessels. The vitreous was clear and the retina everywhere *in situ* in both eyes.

CASE 8.—*Symmetrical progressive Choroido-Retinitis, probably beginning in the Secondary stage of Syphilis.*

Louisa B., married, but many years separated from her husband, had iritis in the L. eye, with falling of hair, at æt. 43; she denied having had either rash or sore throat.

Her sight began to fail at the time when the iritis occurred, and appears to have been getting worse ever since. Latterly there has been distinct night-blindness. For a month before I saw her she had been getting deaf.

On admission.—Æt. 47; old iritic adhesions in the L. eye. Media clear in both eyes. Abundant choroido-retinitis disseminata with waxy atrophy of the discs; great contraction of the retinal vessels, the arteries in the R. being barely visible. The choroidal disease was partly in round spots with or without pigmentation, partly in less regular pigment patches and spots approaching retinitis pigmentosa in distribution and character; in the R. there was pigment along some of the retinal vessels. There was considerable deafness, but I had no opportunity of having it investigated.

CASE 9.—*Slight Iritis followed by Choroido-Retinitis and Neuritis, beginning in Secondary Syphilis. All the changes confined to one eye, and slowly progressing to an atrophic condition, with contraction of field. Prolonged anti-syphilitic treatment, apparently without much effect.*

Henry H., a carpenter, with fair hair, rather delicate and very nervous, was under my care for mild syphilitic iritis in the L. eye only, at æt. 32, in the spring of 1876.

On *Feb.* 3*rd*, 1877, he came again, saying that the eye had been "slightly weak" ever since his former attendance, but that for two weeks past these symptoms had increased and he had had difficulty in using his eyes for long together, as if from accommodative failure.

V.—R. eye, 1 Jaeger easily, and $\frac{15}{30}$ well.
L. eye, 2 Jaeger barely, and $\frac{15}{40}$ badly.

L. eye very slightly congested; he complained of "a little quivering" before this eye, varying at different times but never absent. Pupil of the same size as the other and freely moveable; it dilates fully to atropine, and there are no traces of the iritic attack, to the occurrence of which my former notes testify. With the ophthalmoscope only slight and rather questionable haziness of the O.D. and retina was found.

April 28*th*.—L. eye, very decided haze of disc and neighbouring retina; disc redder than the R. The R. disc is clear and quite different from the L.

July 14*th*.—L. eye, still liable to the "flickering;" V. becomes duller, as a rule, every evening; and yet the eye is "weak" in sunlight. He has often noticed that it ached and became red if he lay down for a time. Well-marked choroiditis with neuro-retinitis. Disc hazy, and redder than the R., with tortuosity and some enlargement of both arteries and veins; *y.s.* region dull, even in the erect image; no opacities proved in the vitreous. A large number of thickly-placed spots of disseminated choroiditis of the lower-inner part of the periphery, in the form of smallish pale spots not sharply defined, apparently in the exudation stage; the overlying retina not definitely hazy. The haziness at the disc, when carefully examined, is seen to be seated deeply beneath the vessels, and is formed, or accompanied, by a halo of pale colour, apparently in the choroid, immediately around it (deep circum-pupillary haze).

Feb. 9th, 1878.—He thinks the eye is, on the whole, about the same. V. still liable to variations; on some days he can read with it, on other days not. To-day he read words of 2 Jaeger with it, but he can only see just what he looks at, the lateral parts being misty, "as if a web was over them." Pupil does not now contract to bright light so fully as in the other eye. Disc now slightly *pale* as compared with the other; the part next the *y.s.* is quite clear and sharply bounded, but the remainder is hazy as before, and its border scarcely visible, the haze being still beneath the vessels. The arteries are decidedly diminished, but some of the vessels are still more tortuous than in the other eye. No disease at the *y.s.* Numerous white spots of partial atrophy of choroid in the position formerly mentioned.

Treatment.—Small doses of mercury taken regularly, with the exception of about two months, for a year, with small doses of iodide most of the time, and quinine part of the time. He was very intolerant both of mercury and iodide, being extremely depressed by them and liable to attacks of shivering and great lassitude, unless the doses were carefully regulated.

Case 10.—*Choroido-Retinitis disseminata in one eye only, one year and a half after Syphilis. Great contraction of visual field and some night-blindness. Rapid improvement of sight under anti-syphilitic treatment. Relapse of chancre while under treatment.*

Joseph B., 32, a shop-assistant, with gray irides and almost black hair, was admitted on *December 16th* 1874, on account of his right eye. It had been failing about six months, and his account was that there was now "a small spot of light in the middle and all the rest dark," and that the sight was worse in the evening. I found the visual field extremely contracted, measuring scarcely two inches in each direction (taken at a distance of two feet from the eye). Ophthalmoscopic examination showed extensive choroiditis disseminata with retinitis; the margins of the disc obscured by deeply-seated haze which scarcely clouded the retinal vessels; general haze of retina, especially near the disc; very abundant, round, yellowish-white spots of recent choroidal disease over the central and equatorial parts. There was no pigmentation of the choroidal spots; most were separate, some more or less confluent, and there was in many parts a general pallor of the choroid between the spots, as if from diffused deposit. From the ophthalmoscopic characters of the choroidal disease, it seemed evident that the changes were recent and due to deposit, not to atrophy. I thought that I could make out the elevation of some of the round patches by a shadow on one side of them. The fundus of the other eye was healthy.

The patient had a chancre, and probably mild constitutional syphilis, two years before he came to the hospital, or eighteen months before his sight failed; he was salivated for about three weeks, as he believes, by mercury.

I prescribed five grains of iodide of potassium and $\frac{1}{16}$ grain of bichloride of mercury three times daily, and he improved quickly. On December 30th he "believes his vision better." January 23rd, "Field of vision much larger at temporal side, and slightly so in all other directions. Slight salivation. Has taken no medicine for a week." Medicine resumed. February 20th, "Visual field of normal size in the upper and temporal quarters, nasal quarter quite wanting up to the centre, lower quarter wanting to within three inches of centre. Relapse of his chancre at roll of prepuce." Medicine continued, and black wash for chancre. March 10th, chancre well.

He has not attended since, and I have failed to trace him. Unfortunately no ophthalmoscopic examination was made after his first visit.

CASE 11.—*Symmetrical Choroido-Retinitis late in Secondary Syphilis. Variations of sight. Great improvement of sight and health under a three months' course of mercury. No disease of Vitreous.*

Phœbe R. had a "diphtheritic" sore throat lasting two months, with falling of hair and "piles," beginning in *March*, 1875. The "piles" (probably condylomata) lasted till she came under care. She had no rash.

About *June*, 1876, she was confined of a girl after an interval of five years. (The child suffered severely from congenital syphilis, and was under my care for severe iritis of its L. eye, with vascular nodules of lymph in the pupil. When three weeks old it became suddenly paralyzed in the R. arm after having been carried to church to be christened; when I saw the child at æt. 5 months the arm had regained power and showed no changes;

there seemed no reason for connecting this attack with the syphilis.)

Mrs. R. began to notice "black specks" before her sight soon after this confinement, but they passed off again. About five months after the confinement, whilst engaged at some unusually fine sewing, she suddenly noticed she could not see the seam, and found the R. eye defective. Although at this time attending with her infant, she made no complaint till three weeks later, viz., on—

Dec. 5th, 1876, when with the R. she could see only large objects, and retinitis was found. Her age at this time was 42. She was in bad health, and complaining of pain and weakness in the wrists and elsewhere, with slight swelling of the painful joints. On *6th* the L. also failed in sight.

A more detailed examination was made on *Dec. 13th*, when under the use of mercury the sight of both had already altered for the better, and her health had begun to improve. No iritis. Media perfectly clear. Conditions symmetrical, but the changes more abundant and advanced in the R. Disc pale and hazy; slight haze of surrounding retina; retinal arteries diminished. Very numerous small dots of pigment at yellow spot, like gunpowder or coarse pepper, with little if any visible change of the choroid between them. In the R. eye there is also well-marked choroiditis, with similar black dots and pallor of the choroid between them, at the outer part of the periphery, but none was visible in the periphery of the L. Her hair is nearly black, but the choroids not very dark.

At this date she could only read large print, or manage to puzzle out a newspaper.

Feb. 6th, 1877.—Sight much better.

$$\text{V.}\begin{cases}\text{R. eye, 4 Jaeger slowly.}\\ \text{L. eye, 1 Jaeger with tolerable ease.}\end{cases}$$

She says that sight still varies at different times; *e.g.*, nine days ago "those nasty blacks came again" in the R. eye, and she was "nearly blind" with the eye for three hours.

Treatment.—Gray powder, in two-grain doses, twice or thrice daily for three months (till March 13th, when she ceased attending). She was never salivated, and health improved very markedly while under care.

Case 12.—*Syphilitic Neuro-Retinitis and Inflammation of Vitreous. Evidence of Choroiditis encircling the disc. Notes of progress wanting. Disease symmetrical.*

Joseph W., a sailor, aged 46, but looking 60, had syphilis early in the autumn of 1876, with rash, sore throat, and sores on the tongue. He came to the hospital in *July*, 1877, on account of a "mirage" before his sight of three or four weeks' duration, and worse in the R. eye. He had been under treatment for his syphilis since the previous November; taking, as he believed, mercury for the first three months of the time, and iodide during the whole period.

On admission—

V. { R. eye, 4 or 6 Jaeger badly, and $\frac{20}{40}$ with many mistakes.
L. eye, 2 Jaeger p. 14″ or 16″ and $\frac{20}{20}$ perfectly.

Pupils act scarcely at all to light and shade, and do not act at all with accommodation; movements of eyes normal except some twitching and rotation in extreme lateral positions, especially to the L.

R. eye.—Considerable haziness of the vitreous, especially at the central and lower parts. Disc hazy and pale, and some of the vessels on its surface partly obscured by lymph; it is surrounded by a halo of ill-margined pallor, probably due to choroidal disease. In many parts of the fundus the retina looks faintly "dappled" by whitish haze. No proof of choroiditis unless around the disc.

L. eye.—Probably some haze of the vitreous, but no separate opacities visible. Disc much redder than the R. and slightly hazy; a crescent on its *y.s.* side. Refraction of both eyes hypermetropic.

He still has sores on the tongue and a few spots on the skin.

Case 13.—*Symmetrical Inflammation of Vitreous, with diffuse haziness and extreme defect of sight whilst taking mercury for Symmetrical Syphilitic Iritis. Keratitis punctata with pigmented spots.*

Ellen U., 68, an Irishwoman, came under care in *May*, 1877, for iritis of the R. with pain and congestion. There was a copious scaly rash on the fronts of the arms, and sores on the palate and tongue. She had already been under treatment.

The iritis in the R. was mild. Three months after admission

(*September*), and while taking mercury, the other eye inflamed more severely than the right, lymph and dense synechiæ being formed in the pupil. In *February*, 1878, her sight was found to be very defective; with the L. barely words of 8 or 10 Jaeger, and worse at night; with the R. scarcely perception of light. T. normal in each. Well-marked punctate deposits were present on the posterior surface of each cornea; in the L. they were very darkly pigmented, almost black, and abruptly defined without any trace of intervening haze; in the R. they were, for the most part, like little drops of cold tallow, and there was slight haze of the cornea between them. I could not make out any opacities in the vitreous of either eye, and the fundus was well lighted up; yet in the R. I could not see any details whatever, either with the erect or inverted image, while in the L. the disc and retinal vessels were only just visible; there must, therefore, have been diffuse "dust-like" haze of the vitreous in both. She said that the sight of the L. eye sometimes became better for a few days.

Treatment.—Mercury for the first four months continuously, but in varying doses; she was freely salivated during part of the time. She again took it in smaller doses for two months at the beginning of this year. Iodide in five-grain doses for nine months.

CASE 14.—*Severe Syphilitic Iritis, with deep-seated inflammation and glaucomatous symptoms. One eye lost.*

Thomas B., a tall, flabby-tissued, badly fed, and intemperate tailor, æt. 55, was under care for severe double iritis, with increased tension and great pain. The attack began three weeks before he came to the hospital. He attended irregularly from *September*, 1877, to *January*, 1878, and declined iridectomy. The R. eye recovered well, but the L. was quite lost, and when last seen its tension much increased, though the anterior chamber was of good depth, and the iris nowhere bulged forwards. In addition to the iritic adhesions there were unusually well-marked remnants of the pupillary membrane in each eye, more in the R. than the L.

He had had syphilis, with a rash, which was partly ulcerative, apparently almost two years before the iritis; but he was uncertain in regard to dates.

II.—CASES OF DETACHMENT OF THE RETINA, AND DISEASE OF THE VITREOUS.

In the following cases, none of the commonest causes of retinal separation, viz., myopia, blows on the eye, and intra-ocular tumours, could be made to explain the changes found. Although the cases present many differences among themselves, and certainly do not all belong to the same category, I have thought it worth while to put them together provisionally, as illustrations of a class of diseases which is of some importance and will certainly repay further study. In connexion with some of these cases I would call attention to an important lecture by Mr. Hutchinson "On the Influence of the Sexual System on Diseases of the Eye," in the "Ophthalmic Hospital Reports," Vol. IX., Part I., in which it is held that disorganizing changes in the vitreous are amongst the occasional consequences of sexual exhaustion.

CASE 1.—*Detachment of Lower Part of Retina, slight but widely spread. Abundant disease of Vitreous. Eye hypermetropic. No cause found.*

John A., 42, a carpenter, came in *March*, 1876, complaining that for two months he had had a moving speck, the size of a pin's head, before his R. eye, that the sight was very dull, and that window-glass with this eye looked green. There had been no other symptom.

On admission.—R. eye barely sees letters of 20 Jaeger. The pupil acts well independently of its fellow; tension normal. A widely-spread but shallow detachment of the retina at the lower and inner part of the fundus. The separation is so shallow that though the retinal vessels look small, dark, and tortuous at the affected part, the red reflex of the choroid is nowhere obscured. Refraction at the optic disc hypermetropic at least $\frac{1}{20}$. The vitreous full of films. No choroidal disease.

L. eye reads 1 Jaeger slowly, and $\frac{20}{20}$; no manifest hypermetropia, but by the ophthalmoscope H. at least $\frac{1}{20}$ proved.

He attended until November. The sight of the diseased eye varied a little, sometimes being worse, and usually being at its best the first thing in the morning; but no material change took place. At one time, in July, the eye was painful for a few days, but there was no external change, nor any material alteration in the ophthalmoscopic appearances. He took three-grain doses of iodide for some time, and had at first distinct coryza from its use.

He had been married twenty years, but his wife had died about two months before his eye symptoms began. I could get no history or evidence of syphilis, or other constitutional disease, either remote or recent.

CASE 2.—*Progressive Failure of Sight from Disease of the Vitreous, and probably Detachment of Retina. Both eyes affected. No cause proved. Disease in progress for several years.*

Thomas B., 51, a hawker, tall, strong, in good health, came to the South London Ophthalmic Hospital in *October*, 1876, so nearly blind of both eyes that he could not count outstretched fingers at a foot off; the L. eye was, he thought, rather the worse. The pupils were of about ordinary size, and acted fairly to light; they dilated imperfectly to atropine, but remained circular and showed no signs of former iritis; the L. did not dilate so well as the R. The lens was perfectly clear in both eyes. The ophthalmoscope gave a dull gray reflex from every part of the fundus in both; only very slight indications of the red choroidal reflex here and there; no retinal vessels were visible, and the proof of detachment was therefore incomplete, since the appearances were equally compatible with dense and universal haziness of the vitreous: in the R. a large white slowly moving body could be seen in the vitreous.

The history was that his sight had been failing for nine years, and had been at its present degree for about a year. There had been no inflammatory symptoms. He had not formerly been short-sighted, nor was there any history of injuries. There was no history or evidence of syphilis, although the history of his children was suspicious. He had married his second wife thirteen years ago, *i.e.*, about four years before his sight began to fail, but he did not consider that he had been excessively indulgent. I saw him only twice.

CASE 3.—*Detachment of Retina, wide and shallow, with paller of disc and diminution of retinal vessels. Eye hypermetropic. History of sudden onset. Choroidal embolism. Influence of sexual system.*

Charles D., 42, a painter, was admitted in *November*, 1875, for defect of the R. eye. He stated that the sight had failed rapidly, in two hours, one morning a month previously, that there had been no pain or inflammation, and no injury. *On admission* there were no external signs of disease; the pupil was active, and tension normal; V. only letters of 16 Jaeger held to the outer side, the upper and nasal parts of the visual field being completely absent. There was widely-spread though slight separation of the retina in the lower, outer, and upper parts of the fundus; at the nasal side it was *in situ.* The disc was pale, and all the retinal vessels uniformly and considerably diminished; all the arteries pulsated regularly on slight pressure. Refraction at disc hypermetropic.

The L. eye had been blind ever since a severe blow in childhood. It was rather shrunken, the tension diminished, the cornea clear, and the anterior chamber deep. It had never at any time given him the least trouble.

For nearly three months he took small doses of iodide of potassium and gray powder, the gums being barely touched by the mercury. The detachment became more extensive, though not materially deeper, and his sight worse; about the inner one-third of the retina remained *in situ.* At the latest examination the disc is noted as "considerably atrophied, but not cupped," and the retinal vessels diminished as on admission, the arteries still pulsating easily. He complained of slight occasional aching in the eye.

In respect to cause, it is to be noted that the changes were quite unlike those occurring in sympathetic inflammation, and that there seemed therefore no reason for supposing that the blind and shrunken L. eye had had any share in their causation neither was there anything pointing to a diathetic cause. There was, in particular, no reason to think that he had had syphilis, nor that if he had had the disease it would have caused, at any stage, such changes as those described. He had been a widower for a year; I could not shake his assertion that he had never since his wife's death had intercourse; and it seems worth inquiring whether his case is one in which the other causes of sexual exhaustion which often come into play under these conditions may have indirectly caused his eye disease.

CASE 4.—*Detachment of Retina in a slightly Hypermetropic boy. No cause proved. Possible influence of a blow on the face.*

Sidney C., 13, came to the hospital in *December*, 1876, for pain and irritability after use of the eyes, for which no cause was found excepting a very low degree of hypermetropia.

The R. eye was very defective, and on examination the retina was found detached in folds at the lower and outer part. There was probably also diffuse haziness of the vitreous. The eye diverged. Two years previously he had received a blow on the face by a snowball containing a small chip of wood, and it was thought that the eye was struck. The squint, however, was said to have been present before, and this, if true, makes it improbable that the blow was the cause of the detachment.

L. eye, V. = $\frac{15}{20}$; after complete atropization $\frac{15}{50}$, raised at once to $\frac{15}{20}$ by + 48 or + 36. Ordered + 40 spectacles.

CASE 5.—*Disease of Vitreous in One Eye of a Man. History pointing to repeated variations in the amount of opacity. Patient liable to epistaxis.*

Charles A., 34, a carpenter, applied in February, 1875, for a defect of his L. eye. "Something dancing down over the sight." He had first noticed it suddenly one morning a year before ; since then it had sometimes been absent for months together, and then reappeared.

On admission, February 24th, with the L. eye he could barely make out 1 Jaeger and read $\frac{20}{50}$. In the vitreous there were large thick floating webs, which much obscured all except the peripheral parts of the fundus ; no other disease could be made out.

On March 20th he stated that the eye had been nearly well till the night before, when "it came over cloudy again." He could now only now and then see a word of 12 Jaeger as the cloud floated partly off. The vitreous was full of large webs and cords, and those of them which could be seen by focal light were white, not red ; thus there was no *proof* that the condition was due to hemorrhage.

On April 17th the note is, "nearly well."

On May 1st examination showed that the vitreous had much cleared, though it still contained a thin web of opacity, and at the lower part a dense opaque spot.

There was no history of injury of any kind. He had at different times been subject to attacks of repeated epistaxis, but not to any great extent; he remembered two such, separated by an interval of several years, the last being the summer before I saw him. He had formerly masturbated largely. When I saw him he was suffering from a second attack of gonorrhœa. There was no evidence of syphilis, nor were the eye changes suggestive of that cause.

CASE 6.—*Peculiar Disease of the Vitreous in One Eye of a Boy, possibly due to a cysticercus.*

James R., 14, an errand boy, believed that his R. eye had begun to fail about two years before admission, and had been nearly blind for about a year. The L. was also somewhat defective. but not more so than was accounted for by a high degree of hypermetropia, with some astigmatism.

On admission, Oct. 30th, 1876.—R. eye sees only 20 Jaeger, and only when looking down. Pupil active; a moving grayish reflex seen by daylight. With the ophthalmoscope extreme disease of the vitreous was found, in the form of (1) a streaky membranous-looking opacity just behind the lens, not moving; (2) behind this a large, very delicate, and freely floating gauze-like opacity; (3) deep down at the lower part of the vitreous a small oval white body, easily seen by focal light, and freely moveable. No details of the fundus could be seen.

The size, shape, and general appearance of the opacity numbered (3) suggested the presence of a cysticercus. I saw him only once, and the case must therefore remain incomplete.

CASE 7:—*Disease of Vitreous in One Eye of a Lad: Slow progress. No cause assigned:*

Walter S., 18, a labourer, had noticed a little "spot rising and falling before" the L. eye for twelve months before he came to the hospital; it had gradually increased; there had been neither pain nor inflammation. He thought that for the last three weeks a similar spot had been beginning in the R. eye.

On admission, November, 1875.—L. eye can read 1 Jaeger slowly and held rather near; very large, freely floating cobweb-like opacities in the vitreous. No iritis, and no other morbid appearances. Refraction hypermetropic.

Nothing could be found wrong with the R. eye.

Five months later the state of things had not altered much, excepting that a string of opacity was now seen passing from the posterior surface of the lens backwards through the vitreous towards, though not so far as, the disc.

After careful inquiry I could gather nothing as to cause; I regret that I have no note as to gout.

CASE 8.—*Detachment of Lower Half of Retina, slight but widely spread. Disease of the Vitreous. History pointing to the sudden onset of the detachment. Severe blow on the eye many years before. Eye hypermetropic.*

Wm. P., a labourer, 44, was sitting reading on Sunday, *March* 18, 1877, when a "darkness" came over his sight; thinking it was the cloudiness of the sky, he drew the curtain aside, and then found on trial that the L. eye had become dim. He had until then always been accustomed to "take sights" in his work with the L. eye.

On admission.—L. eye sees letters of 20 Jaeger in the lower part of the field only; almost the whole upper half of the visual field absent, the line of demarcation being very abrupt. Pupil rather larger than the R., but acts fairly well independently of its fellow. The lower half of the retina detached from about the level of the disc and yellow spot downwards, the separation being shallow in all parts and not obscuring the choroidal reflex; some small opacities in the vitreous. Refraction of disc slightly hypermetropic. No choroidal disease seen.

For about *twelve months* he had been subject to a "roaring" or "humming" in the top of the head, noticed chiefly when quiet, not when at work, nor when lying down; he thought himself getting a little deaf. No pain in the head. Excepting that in a prize fight, some nine years ago, he had received a hard knock on the L. eye, I could find no clue to the cause of the retinal detachment.

CASE 9.—*Extensive and Deep Detachment of Retina, with disease of Vitreous. No cause found. ? Tumour. Eye hypermetropic.*

Elijah B., 31, a portly man, getting corpulent, a small shopkeeper, had known for four years that his L. eye was defective. He came to the South London Hospital in *August*, 1877, because he thought that for some months past the eye had been getting worse. There had been no symptoms whatever excepting failure of sight. When a boy he believed that some lime had gone into the eye, but it had left no outward traces; there was no other history of injury.

On admission.—L. eye barely sees letters of 20 Jaeger, held to the extreme temporal side; pupil of same size as the other, acts well with its fellow, but does not act alone; tension normal. Numerous floating webs in the vitreous. An extensive, abrupt and deep detachment of the retina, which was not seen to float about. Optic disc seen dimly, and its refraction hypermetropic. R. eye perfect; reads 1 Jaeger and $\frac{20}{20}$.

He was cautioned as to the possibility of a tumour being present. I have not seen him again.

CASE 10.—*Large and Deep Detachment of Retina in an Old Woman. History pointing to rapid increase of detachment. No other symptoms. Eye hypermetropic. Globe excised for possible tumour. Nothing found to account for the disease.*

Maria W., 72, had noticed something "like a little black mark in the corner" of her L. field of vision for a year; ten days before admission it quickly increased and covered half the sight.

She was confident that her eyes had never been injured, and could remember nothing worse than a slight attack of inflammation in them twenty years before. She had all her life been "long-sighted."

February 9*th*, 1878.—L. eye can see large objects, but only in the temporal side of the field; pupil active; tension normal; no external signs of disease. A large detachment of the retina in the lower half of the fundus, beginning gradually close to the optic disc and increasing rapidly in depth from above downwards; some parts of it float. Refraction of optic disc hypermetropic, but the exact degree not measured.

R. eye.—Hypermetropia at least $\frac{1}{12}$; V. $\frac{20}{15}$; with her glasses (+ $\frac{1}{7}$) reads 4 Jaeger.

Feeling sure that the L. eye was lost for all practical purposes, not relying fully on her account, which pointed to a rapid recent increase of the detachment, looking at the absence of the two commonest causes of simple detachment, viz., myopia and injury, I thought excision of the eye the safest course, since a tumour growing from the choroid seemed to furnish the next most probable explanation of the case.

On opening the globe after removal, however, I found nothing but serous fluid between the choroid and the separated portion of the retina; nor was there anything in the naked eye appearance of the structures to throw light on the cause of the disease.

She was a tall, largely built, sallow-skinned woman, with dark hair, and in fair health and vigour for her age.

III.—CASES OF ABSCESS IN THE OUTLYING LOBULES OF THE LACHRYMAL GLAND, THE "INFERIOR LACHRYMAL GLAND."

Abscess in the main body of the lachrymal gland is decidedly rare; but cases are not very infrequent in which a small and trivial abscess forms apparently in one of the separate lobules which lie in advance of the greater part of the gland; the lobules described collectively by some anatomists as the "inferior lachrymal gland."

In the cases which I have seen there has been a little abscess, always acute, in the substance of the upper lid, close to the outer canthus; it has generally pointed through the conjunctiva, has been accompanied by marked protrusion of the oculo-papebral fold, and often by some serous chemosis of the corresponding part of the eyeball. I have seen a moderate number of such cases, and my reason for referring the seat of disease to one or more of the lachrymal lobules is that I do not remember to have seen more than one case in which a similar abscess occurred in any other part of the lids.

CASE 1.—Minnie G., 2; *June*, 1877.—A small abscess near the outer end of the L. upper lid. It had burst through the conjunctiva just above the edge of the tarsus.

Case 2.—Sarah L., 7; *June*, 1877.—A small abscess at the outer end of the R. upper lid, corresponding to the position of the lobules forming the "inferior lachrymal gland." It had already broken. She had also had two styes at a distance from this abscess.

Case 3.—George B., 18 months; *April*, 30, 1877.—Brawny dusky, fluctuating swelling of L. upper lid, chiefly at outer end, well defined, and corresponding to the position of the inferior part of the lachrymal gland. The abscess projects on the conjunctival surface at the part corresponding to the lachrymal ducts; there is serous chemosis. An incision from the conjunctival surface evacuated the abscess; the pus was for the most part in front of the rim of the orbit; the abscess cavity examined with a probe seemed to be divided into several little pockets.

Case 4.—Alfred W., 7; *October*, 1876.—A small abscess over the outer end of the R. eyebrow, with an enlargement of the præ-auricular gland and of the glands behind the jaw.

Case 5.—Joseph H., 6; *October*, 1877.—A small brawny swelling nearly corresponding to the outer canthus, and threatening to point through the skin.

Case 6.—Robert B., 44; *March*, 1877.—An abscess at the outer end of the R. upper lid; the skin freely moveable over it; much serous chemosis at the corresponding part of the globe. Next day the abscess had broken through the conjunctiva, and its orifice was seen to correspond to the position of the lachrymal ducts.

ON THE

VOCAL METHOD OF INFLATING THE TYMPANUM.

By H. H. CLUTTON, F.R.C.S.

In writing the few following lines I do not wish for one moment to decry the use of the catheter. It is often the only means of doing any good to otherwise incurable cases of deafness. But there are many cases in which it is undesirable, unnecessary, or even impossible. For instance, in cases of recent Eustachian obstruction, where there is presumably no thickening of the mucous membrane of the cavity of the tympanum itself, no rigidity of the small bones, but simply a catarrhal swelling of the mucous membrane of the Eustachian tube, it is quite unnecessary to use the catheter. In other cases the patients are so timid, or struggle so violently, that it is better to desist for a while, and to substitute some milder method of treatment till the patient is accustomed to the unpleasant sensation of having air forced into the pharynx, and has experienced the benefit to be derived from such means. Then, again, it is sometimes quite impossible to pass a catheter. The inferior turbinated bone may be so curled upon itself that no amount of ingenuity in turning the catheter in every possible direction will succeed in passing it onwards into the pharynx; or the septum may deviate to one side, and present an insurmountable obstacle to its introduction.

For these reasons we gladly welcome any new method which enables us to force air into the tympanum without having recourse to the catheter.

At the present time Politzer's method is the plan generally adopted. The patient having taken a mouthful of water, air is forced, by means of an india-rubber bag, through the nares into the naso-pharyngeal space at the moment that the water is swallowed. By this act of swallowing the naso-pharyngeal space is momentarily cut off from the mouth and pharynx, and it was thought too that the Eustachian tubes were opened by the action of the salpingo pharyngeus, the levator, and tensor palati. Professor Lucæ has, however, shown that this is not generally the case, that the tubes are rather compressed during the act of swallowing, and return at the close of this action to their normal condition of loosely applied apposition. He argued, therefore, that if this be so, then it was only necessary to raise the soft palate, and that it was quite unnecessary for the patient to perform the act of swallowing in order to force air into the tympanum with Politzer's bag. He found that air might be forced into the middle ear by making the patient pronounce the vowel *a* while he forcibly emptied the balloon into the nose in the usual manner.

By a prolonged phonation of the vowel *a* the soft palate is raised and the naso-pharyngeal space shut off from the mouth and pharynx. That in many cases this is completely successful, and air thus forced into the tympanum is, I think, easily demonstrated. In fact, in the treatment of children, it is not now usual to do more than empty the balloon into the nose.

Professor Gruber, of Vienna, in a pamphlet, entitled 'Über ein neues Verfahren zur Wegsammachung der Eustachischen Ohrtrompete und zur Ventilation der Trommelhöhle,' and in the 'Lancet' (January 12, 1878), has lately advocated an improvement upon this method. Instead of *a*, some syllable like *hic* is pronounced, the result being best obtained when the consonants *h*, *k*, *k* are sounded together in the most sudden manner. To facilitate this mode of operation he makes the patient pronounce some complete syllable which has a vowel between the consonants, such as "hack," "heck," "hick," "hock," or "huck." When such a syllable is forcibly pronounced, expiration is suddenly interrupted by the root of the tongue being drawn upwards and backwards against the soft palate. In this manner the naso-pharyngeal space is more completely and firmly shut off from the mouth and pharynx.

The operation is performed in the same manner as in Politzer's method, phonation being substituted for swallowing. The nozzle of the bag is introduced into the floor of one of the nostrils, which are then firmly pressed together with the finger and thumb to prevent the escape of any air through the anterior nares; and while the patient, at a given signal, utters one of the prescribed syllables, the ball is compressed: by means of the otoscope, the air can be heard to enter the tympanitic cavity, producing the characteristic sound. The more forcibly this syllable is pronounced the more forcibly can the ballaon be compressed with a satisfactory result.

The catheter is undoubtedly the most powerful means that we possess of forcing air into the tympanitic cavity; for by it one obtains a more direct channel to the cavity of the tympanum; no force is wasted in the pharynx and nostrils, as must necessarily be the case in the employment of the balloon alone. But for the reason given above it is not always possible, and the patient in the intervals of seeing the surgeon cannot pass the catheter for himself. This vocal method gives us another, and, I believe, a more powerful method of inflating the tympanum than the one now generally used. By it the action of the balloon can be more prolonged; the act of swallowing has only a momentary effect upon the palate, supposing this action even to assist in opening the tube, while the act of pronouncing a syllable like *hic* as forcibly as the patient is able, and without absolutely finishing the word and allowing the tongue to drop again, will keep the palate raised for a much longer period.

The swallowing of water does not generally cause any inconvenience when it is only occasionally resorted to, but there are very few patients, indeed, who do not quickly relapse into their former condition, the length of time varying with the severity and duration of the disease. I am in the habit of teaching the patients in the out-patient room to inflate the tympanum for themselves as soon as the effect of the first inflation wears off, or as frequently as they are able to do so with comfort to themselves. And in cases of chronic middle ear affection, where the catheter has at first to be used before air can be passed into the tympanum, the bag can be subsequently employed with great advantage by the patient himself; the self-inflation can also be frequently employed in the intervals of catheterisation. During all this time the constant swallowing of water is very irksome and disagreeable. Besides the considerable quantity of water swallowed there are many patients who are troubled with eructations after Politzer's method of inflation, and suffer from pain in the stomach till relieved of the air that has been swallowed. But if air can be forced into the tympanum by the vocal method, as in many cases it can, by the patient himself, this inconvenience is not felt, and he derives the same benefit that is obtained from Politzer's method.

This method is, I believe, easily taught, as it is simply necessary for the operator himself to use the expression with sufficient force, and to try and make the patient imitate him as closely as possible. My experience is that in most cases they learn it much more quickly than they do the method by swallowing water, and when once taught it saves an immense deal of time. The rapidity with which it can be repeated with gradually increasing force is an immense boon in the out-patient room. The operator can pass from one patient to another without waiting for the patient to take a mouthful of water, and the inflation can be repeated as often as is necessary without any inconvenience to the patient.

Believing as I do that this method when successful answers all the purposes for which Politzer's inflation is adopted, and produces as great, if not greater, effect upon the membrane and cavity of the tympanum, and avoids at the same time the inconveniences with which the swallowing of water is necessarily attended, I cannot but think that when it has had sufficient trial, the vocal method will be very generally adopted.

There are, indeed, a few patients in whom it does not seem to succeed, while the inflation can be effected by Politzer's method. These cases, however, become perceptibly fewer as the surgeon acquires greater familiarity with its application.

FURTHER REMARKS ON KAKKE;

WITH AN

ACCOUNT OF THE PATHOLOGY AND MORBID ANATOMY OF THE DISEASE.

(*Continued from* Vol, VII, *page* 5.)

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Pathology and morbid anatomy.—At present little can be said about the pathological changes accompanying the different forms of kakke, but a careful consideration of the phenomena leads us to refer for their origin to the nerve centres, the apparent point of attack of the specific poison. The unequally distributed impairment of sensation and motion obviously have their source in localised disturbances of the cord, but the cardiac irritability, the vomiting, and the dropsical effusions cannot be so satisfactorily accounted for, although a possible explanation may be found for all in abnormal central nervous influences.

Autopsies have as yet given little positive information, they have been few in number, and for the most part performed under circumstances which prevented full investigation, owing to the prejudices existing in the minds of the Japanese against any interference with the dead body. The reports, however, agree as to the absence of any characteristic lesion, but they are silent as to the condition of the nerve centres, a full examination of which appears to have been omitted; this deficiency is unfortunate, as we might expect the discovery of some definite lesions in certain forms of the disease, especially the more chronic cases, although detectible structural changes would probably be absent in acute kakke where death occurs within a few hours of the onset of the symptoms.

The following is an abstract of a report of the post-mortem examination in a case of acute kakke, the only one in which I have been able to obtain the requisite permission.

The patient, a strong healthy man, æt. 23, without a sign of anæmia, was admitted for kakke in, apparently, a very mild form. A few days after coming under treatment he was suddenly attacked by severe dyspnœa and anxiety, with pain in the epigastric and hypochondriac regions, and vomiting. The dyspnœa and pain gradually increased in intensity, and the vomiting recurred at frequent intervals, the ejecta, at first chiefly bilious, afterwards became frothy and blood-stained, and appeared to come in great part from the air passages. Examination of the thorax revealed signs of œdema of the lungs, but there was no evidence of pericardial distension. The pulse slowly failed, becoming imperceptible at the extremities, while the carotids still throbbed visibly, the temperature sinking until, just before death, it reached 93°. Consciousness was perfect almost to the last. There was no purging.

Treatment was unavailing, and at the end of twenty hours (from the commencement of the acute symptoms) he died.

The post-mortem examination was performed fifteen hours afterwards. The chief points revealed were as follows:

General aspect.—Body muscular and well nourished, rigor mortis well marked. Face dusky, lips blue, integument of trunk and lower extremities stained of a purplish colour, chiefly, but not entirely in dependent positions.

Respiratory organs.—Lungs.—Bronchial tubes and air cells contained a large quantity of frothy fluid. Parenchyma doughy and œdematous. Larger vessels loaded with dark fluid blood. Pleuræ normal.

Circulatory organs.—Pericardium contained about two ounces of clear fluid, and a flat, dark coagulum about two inches in diameter. Vessels congested, and in one situation appeared to have given way, allowing escape of blood.

Heart.—Muscular substance firm and healthy; valves normal. All cavities contained clots, that on right side large, soft and dark, on the left side smaller, firmer, and partly decolorised.

Digestive organs.—Stomach contained some frothy fluid and a little milk swallowed shortly before death; large ecchymoses were seen in two situations beneath and in substance of mucous membrane. On microscopical examination the surface was found to be completely denuded of epithelium, and the vessels of itsmuscular and submucous coat were gorged with blood.

Intestines.—Aspect highly congested; contents fluid, and of a dirty yellow colour, but not in very large quantity. Submucous ecchymoses in two or three situations in the upper part of the small intestine. On microscopical examination the surface was found to have lost its epithelium except where inflected into the Lieberkuhnian tubes; the veins were extremely distended with blood, the involuntary muscular fibres and Meistner's ganglia unusually distinct.

Liver, spleen, and pancreas congested with dark fluid blood.

Peritoneal cavity contained no effusion.

Nervous system.—Brain.—Membranes somewhat congested; no effusion beneath membranes or in ventricles. Brain substance normal in appearance and firm on section. On microscopical examination no changes were found in the nervous structures, but the capillary vessels were unusually distinct, though empty, and were collapsed in a very irregular manner, as if after great over-distension.

Cord.—Membranes congested; two blood extravasations of considerable extent on outer surface of dura mater in cervical region. Condition on microscopical examination similar to that of brain.

Solar plexuses and semilunar ganglia apparently healthy.

Urinary organs.—Kidneys somewhat congested.

Bladder contained a small quantity of urine, which was free from albumen and sugar.

Blood dark and fluid in organs, coagulated in terminations of venæ cavæ. No peculiarity seen on microscopical examination. Proportion of red and white corpuscles not abnormal.

Remarks.—The similarity of the symptoms and post-mortem appearances in some respects to those of cholera was striking. The abdominal pain, cyanosis, dyspnœa, constant vomiting, and gradual lowering of temperature, together with the denudation of the digestive mucous membrane of its epithelium, were suggestive points of resemblance, but the absence of purging and cramp, and the presence of dropsical effusions were distinctive. It is uncertain whether the condition of the intestinal canal is a common concomitant of the acute disease, as I am not aware that a microscopical examination of the membrane had previously been made.

The œdema of the lungs was probably answerable for the worst symptoms and rapid death, the pericardial fluid not being in sufficient quantity to produce any serious results. The relation of the intestinal lesion to the other phenomena is very obscure, but it is not impossible that the appearances were due to an acute exudation (as in the lungs) which carried the epithelium before it. The vomiting, an almost constant symptom of acute kakke, appeared in this instance to relieve the air passages of much of the fluid poured into them.

REPORT

ON THE

TREATMENT OF ACUTE RHEUMATISM BY SALICYLIC ACID.

By ERNEST H. JACOB, M.A., M.B. Oxon.

The history of the treatment of acute rheumatism by salicine and its associated drugs has of late occupied a large space in medical literature in various parts of the globe. Within a year from the announcement by Dr. Stricker, of Berlin, and Dr. Maclagan, of Dundee, of the effect of salicylic acid and salicine in the treatment of rheumatism, no less than three hundred cases were reported in the public journals, and though there were not wanting cases of failure, and even of harm, produced by these drugs, the preponderating evidence was so great in favour of the new treatment that the use of salicine, salicylic acid, and sodium salicylate, have now become well-nigh universal.

The accompanying tables give in brief the result of the treatment of a hundred and fifty cases of acute rheumatism treated by salicine and its congeners, in the wards of the Leeds Infirmary. The drug most in favour has been the salicylate of sodium on account of its cheapness (compared to the alkaloid), its ready solubility, agreeable taste, and comparative freedom from the irritating properties possessed by the acid.

With regard to the general results I have little to add to those stated in a paper on this subject, read before the British Medical Association in August 1877.

Taking the cases in order of severity they may be classed as follows :—

		Males.		Females.
Severe	...	25	...	16
Moderate	...	54	...	24
Subacute	...	23	...	8

I.—As for the results of treatment—

				Average duration of disease after treatment.		Average days in hospital.
Effect good	... ...	103	...	2·9 days.	...	13 days.
Moderate	... ...	42	...	11 „	...	35 „
Unfavorable	... ...	5	...			

II.—As to cardiac complication—

Seventy-two cases only were admitted with healthy hearts; of these, 5 were affected after the commencement of treatment, giving a percentage of 6·9. One of these, however, became affected during a relapse, the medicine having been discontinued.

III.—It is a most important question how far a patient rapidly cured of acute rheumatism may be more subject to a relapse than one in whom the disease has been allowed to run its course. It is certain that if the drugs be discontinued immediately on convalescence a relapse is very likely to take place. In the last two years four patients have been treated twice, and two three times, for distinct attacks of acute rheumatism. In one of the latter class the patient, after having had salicine in two previous attacks, was, in the third attack, treated by blisters only for a week, with no abatement of his sufferings. Two days' treatment by salicine completely removed the pain, and brought the temperature to the normal point. The five fatal cases succumbed in spite of large doses of the drug, aided by cold baths to subdue the hyperpyrexia. The doses generally given consisted of 30 grains of sodium salicylate or salicine, 20 grains of salicylic acid every four hours till convalescence was established, afterwards the medicine was continued three times a day for a fortnight.

The cases most amenable to treatment appear to be those in which the attack is of recent date, the temperature 103° to 104°, the joint affection considerable.

Those are of less satisfactory character in which the affection is of longer standing, the joint mischief less acute, and the pyrexia but slight.

In the rapidly fatal cases where delirium and hyperpyrexia are the most prominent symptoms I have not been able to satisfy myself that these drugs are of the smallest use.

With regard to the toxic effects of the drugs I have nothing to add to that already noticed. In no case could I trace delirium to its use, although a sort of nervous excitability, restlessness, and rapid breathing appeared occasionally to be due to a toxic cause. Salicylic acid was frequently, but sodium salicylate seldom vomited.

Table of Cases of Acute Rheumatism treated by Salicine and Salicylic Acid.

MALES.

No.	Age	No. of attacks	Days			Severity of attack	Result	State of heart on admission	Treatment	Remarks
			Duration before admission	Convalescence after treatment	Stay in hospital					
1	30	2	7	3	11	Moderate	C.	Normal	Sod. salicylate	—
2	37	2	4	1	10	,,	C.	Mitral regurgitation	,,	—
3	11	1	...	3	11	,,	C.	Normal	,,	—
4	18	2	12	1	13	,,	C.	Pericarditis, mitral regurg.	,,	—
5	27	...	..	4	42	Subacute	R.	Normal	,,	—
6	40	1	...	6	...	Moderate	C.	,,	Alkalies, sod. salicylate	Attack while in surgical ward.
7	19	1	60	18	68	,,	C.	,,	Alkalies, salicine	*Pericarditis* during treatment.
8	32	4	7	21	30	,,	C.	Mitral regurgitation	Salicine	—
9	36	1	10	13	36	Severe	C.	Normal	Alkalies, salicine	Much delirium of typhoid nature, but beginning before and uninfluenced by treatment.
10	28	2	4	15	50	,,	C.	Pericarditis, mitral regurg.	,, ,,	—
11	28	1	7	...	70	,,	C.	Normal	Sod. salicylate	—
12	22	1	4	4	9	Moderate	C.	Mitral regurgitation	,,	
13	22	2	4	6	18	,,	C.	,,	,,	Rheumatism, followed by enteric fever. Same patient.
14	22	3	5	8	19	Severe	C.	,,	Alkalies, salicine	
15	28	2	4	15	50	,,	R.	Pericarditis, mitral regurg.	,, ,,	—
16	27	1	16	3	10	Subacute	C.	Mitral regurgitation	Sod. salicylate	—
17	21	1	8	9	13	Moderate	C.	,,	Salicine, sod. salicylate	—
18	22	1	4	3	8	Subacute	C.	,,	Sod. salicylate	—
19	19	4	4	7	15	Severe	C.	,,	Salicine, sod. salicylate	Salicine failed; temp. fell with sod. sal.
20	17	1	3	10	21	,,	C.	,,	,, ,,	*Pericarditis* during treatment.

21	20	1	3	19	54	,,	C.	,,	Alkalies, salicylic acid	—
22	25	2	1	2	20	Moderate	C.	,,	Sod. salicylate	—
23	28	1	21	1	...	,,	C.	Normal	,,	—
24	30	2	...	...	24	Severe	D.	Pericarditis, mitral regurg.	Acid. salic., sod. sal., quinine	Hyperpyrexia, delirium; had six baths.
25	16	2	7	3	18	Moderate	C.	Mitral regurgitation	Sod. salicylate	—
26	42	1	63	12	28	Subacute	C.	Pericarditis	Sod. sal., alkalies, salicine	—
27	25	1	10	2	14	Moderate	C.	Mitral regurgitation	Sod. salicylate	Slight pneumonia.
28	28	2	12	...	29	Subacute	C.	Normal	,,	—
29	27	2	56	...	32	Moderate	...	,,	Alkalies, sod. salicylate	—
30	30	2	49	...	23	Subacute	R.	Mitral regurgitation	Salicine, alkalies	—
31	28	2	28	...	13	,,	C.	Normal	Alkalies, sod. salicylate	—
32	23	1	21	...	30	,,	C.	Mitral regurgitation	Sod. salicylate	—
33	18	1	42	...	14	,,	C.	Normal	,,	—
34	16	1	21	2	15	Moderate	C.	,,	,,	—
35	30	1	5	...	4	Subacute	C.	,,	,,	—
36	31	1	28	4	4	,,	C.	,,	,,	—
37	34	1	28	...	11	,,	C.	,,	,,	—
38	26	1	7	...	8	,,	C.	,,	,,	—
39	38	1	28	...	...	,,	R.	,,	Pot. iod., quinine, sod. salicylate, alkalies	Had phthisis, with hæmoptysis.
40	36	1	1	...	...	,,	C.	,,	Sod. salicylate	Admitted for fractured tibia.
41	24	2	2	2	15	Severe	C.	,,	,,	—
42	28	1	21	2	8	Moderate	C.	,,	,,	—
43	23	1	8	2	6	Severe	C.	,,	,,	—
44	23	2	7	1	15	,,	C.	,,	,,	—
45	19	1	6	1	9	,,	C.	,,	,,	—
46	38	1	10	3	12	Subacute	C.	,,	,,	—
47	20	1	7	2	15	Moderate	C.	Pericarditis	,,	—
48	39	4	21	5	15	,,	C.	Normal	Alkalies, sod. salicylate	Had phthisis, which much improved.
49	16	2	7	1	...	,,	C.	Mitral regurgitation	Sod. salicylate	—
50	36	1	...	...	49	,,	C.	Normal	Sod. sal., alkalies, quinine	—
51	24	3	7	28	70	Severe	C.	,,	Sod. salicylate, quinine, alkalies, pot. iod.	Immediate improvement; subsequent pyrexia, but little pain.
52	42	1	14	3	12	Moderate	C.	,,	Sod. salicylate	—
53	23	3	9	3	12	,,	C.	Mitral regurgitation	,,	—
54	22	1	6	3	28	Severe	C.	Normal	,,	—

[illegible]	[illegible]	Days.				Severity of attack.	[illegible]	State of heart on admission.	Treatment.	Remarks.
		[illegible]	[illegible]	[illegible]	[illegible]					
55	20	4	4	1	18	Severe	C.	Mitral regurgitation	Sod. salicylate	—
56	49	1	70	1	8	Moderate	C.	Normal	,,	—
57	39	3	14	1	28	,,	C.	Mitral regurgitation	Sod. salicylate, alkalies	—
58	66	5	14	...	.	Severe	D.	Normal	Salicin	Death from exhaustion; temp. 107·5 just before death; severe [illegible]
59	20	2	14	2	14	Moderate		Mitral regurgitation	Sod. salicylate	—
60	40	2	7	2	14	Severe	C.	,,	,,	—
61	28	6	14	6	21	Moderate	C.	,,	,,	—
62	51	2	5	2	7	,,	C.	Normal	,,	—
63	42	1	14	2	10	Severe	C.	Mitral regurgitation	,,	—
64	49	2	21	...	...	Subacute	C.	Normal	Alkalies, salicine, quinine, blisters	—
65	27	1	21	1	4	Moderate	C.	,,	Sod. salicylate	Phthisis.
66	7	1	...	1	6	,,	C.	Mitral regurgitation	,,	—
67	22	3	14	1	11	,,	C.	,,	Sod. salicylate, quinine	Relapse.
68	27	2	8	13	28	Severe	C.	,,	Sod. salicylate	—
69	15	3	4	2	7	Moderate	C.	Normal	,,	*Mitral regurg.*: murmur after admission.
70	13	1	14	5	24	,,	C.	Mitral regurgitation	,,	—
71	17	2	21	2	17	,,	C.	,,	,,	—
72	34	1	12	3	17	,,	C.	,,	Sod. salicylate, pot. iod.	Some delirium.
73	45	1	35	14	26	Subacute	C.	,,	,, ,,	—
74	13	2	12	...	8	Moderate	C.	,,	Sod. salicylate	—
75	32	2	4	1	8	,,	C.	,,	,,	—
76	32	3	7	2	18	Severe	C.	Normal	,,	—
77	33	1	10	4	17	,,	C.	,,	,,	Murmur at apex after admission.
78	22	1	5	3	19	Moderate	C.	,,	Sod. salicylate, alkalies	—
79	26	6	3	2	9	,,	C.	Mitral regurgitation	Sod. salicylate	—

80	33	2	21	4	...	Severe	C.	Normal	„	—
81	17	2	5	...	...	Moderate	C.	Mitral regurgitation	„	—
82	25	4	10	...	1	„	C.	„	„	—
83	22	1	4	2	...	„	C.	„	„	—
84	36	2	14	2	..	„	C.	Normal	„	—
85	50	5	14	3	26	„	C.	„	Sod. salicylate, salicine, pot. iod., blisters	—
86	14	3	7	1	56	„	C.	Pericarditis, mitral regurgitation	Sod. salicylate, digitalis	Joint affection quickly subdued, but prolonged shortness of breath.
87	50	1	14	7	38	„	C.	Normal	Sod. salicylate, iron	Relapse on fifteenth day.
88	28	1	21	5	21	„	C.	„	Sod. salicylate	—
89	39	2	7	1	11	Subacute	C.	„	Sod. salicylate, pot. iod.	—
90	33	2	28	4	41	Severe	C.	„	Sod. salicylate, salicine	Relapse on fourteenth day.
91	15	1	35	2	23	Moderate	C.	Mitral regurgitation	„ pot. iod.	—
92	36	1	14	30	40	„	C.	„	Sod. sal., alkalies, pot. iod.	Gouty subject.
93	23	1	21	2	12	„	C.	Normal	Sod. salicylate, pot. iod.	—
94	21	3	35	1	8	„	C.	Mitral regurgitation	Sod. salicylate	—
95	35	2	35	2	11	Subacute	C.	„	„	—
96	21	1	10	2	11	Severe	C.	Normal	„	—
97	33	2	7	2	28	Moderate	C.	„	Sod. sal., salicine, pot. iod.	—
98	40	5	12	3	13	Subacute	C.	„	„ „ „	—
99	29	2	14	2	38	Moderate	C.	Mitral regurgitation	Sod. salicylate, alkalies, copaiva, pot. iod.	Gonorrhœa existing.
100	22	1	7	1	15	„	C.	Pericarditis, mitral regurg.	Alkalies, salicine, sod. sal.	—
101	10	1	1	2	7	„	C.	Normal	Sod. salicylate	—
102	45	1	8	2	24	„	R.	„	„	—

FEMALES.

No.	Age	No. of attacks	Days: Duration before admission	Days: Convalescence after treatment	Days: Stay in hospital	Severity of attack	Result	State of heart on admission	Treatment	Remarks
1	18	1	3	4	10	Moderate	C.	Mitral regurgitation	Acid. salicylic	—
2	22	1	2	2	11	Severe	C.	,,	Sod. salicylate	—
3	14	1	5	11	20	Moderate	C.	Transient mitral reg. murmur	,,	Albuminuria.
4	20	2	7	4	28	,,	C.	Normal	Acid. salicylic, alkalies	—
5	20	3	3	3	18	,,	C.	,,	Acid. salicylic	—
6	22	1	10	4	6	,,	C.	Mitral regurgitation	Sod. salicylate	—
7	21	1	21	3	12	,,	C.	,,	Salicine, acid. salicyll.	—
8	19	1	7	2	14	Subacute	C.	,,	Acid. salicylic	—
9	2	2	7	20	45	Severe	C.	Mitral regurg., pericarditis	Sod. salicylate, digitalis	Trace of albumen.
10	20	1	10	12	...	Moderate	C.	Mitral regurgitation	Sod. salicylate	In surgical ward.
11	28	1	14	...	5	Severe	D.	,,	Sod. salicylate, quinine	Admitted in typhoid condition.
12	19	1	12	...	6	,,	D.	Pericarditis	Sod. salicylate, baths (4)	Violent delirium allayed by baths.
13	36	1	7	...	7	,,	D.	Mitral regurgitation	Acid. salicylic	Delirium on admission; cold affusion employed.
14	17	1	28	4	33	Subacute	C.	,,	Alkalies, salicine	—
15	38	2	21	...	32	,,	C.	Normal	Salicine, alkalies	Phthisical.
16	21	1	7	...	18	,,	C.	,,	Acid. salicylic	—
17	59	2	28	4	8	,,	C.	,,	Sod. salicylate	—
18	20	2	14	2	11	Severe	C.	,,	Sod. salicylate, salicine	Sod. salicylate vomited; salicine retained.
19	42	2	24	3	10	Moderate	C.	Mitral regurgitation	Sod. salicylate	—
20	25	1	8	26	12	Severe	C.	Normal	Sod. salicylate, salicine, alkalies, quinine, pot. iod.	Probably syphilitic.
21	26	30	1	14	90	,,	R.	,,	Sod. salicylate, quinine, cautery to knee	Permanent injury to both knees.

22	42	1	14	13	12	Moderate	C.	,,	Sod. salicylate	—
23	13	2	7	2	17	,,	C.	,,	Salicine	—
24	50	3	56	2	40	Severe	C.	Mitral regurgitation	Sod. salicylate	*Pericarditis* after medicine was stopped.
25	47	1	6	3	12	Moderate	C.	Normal	,,	—
26	19	4	...	3	20	,,	C.	Mitral regurgitation	,,	—
27	23	1	7	2	8	,,	C.	,,	,,	—
28	24	1	21	2	10	Severe	C.	Normal	,,	—
29	32	2	4	2	7	Moderate	C.	,,	,,	—
30	23	1	5	6	36	Severe	C.	Mitral regurgitation	Sod. salicylate, salicine	*Pericarditis* during treatment.
31	15	2	4	3	15	,,	C.	,,	Sod. salicylate	—
32	24	2	14	5	22	Moderate	C.	,,	,,	—
33	19	1	7	3	22	Severe	C.	Normal	,,	—
34	18	1	14	2	14	,,	C.	,,	,,	—
35	28	2	4	1	14	,,	C.	,,	,,	—
36	63	1	21	1	14	Moderate	C.	,,	,,	—
37	42	1	14	2	90	Severe	C.	,,	Sod. salicylate, alkalies, pot. iod., quinine	Pain in knee persistent for three months.
38	14	3	7	2	8	Subacute	C.	Mitral regurgitation	Sod. salicylate	—
39	30	4	21	1	12	Severe	C.	,,	,,	—
40	18	3	14	2	19	Moderate	C.	,,	,,	—
41	28	1	16	5	21	,,	C.	,,	,,	—
42	42	1	21	...	...	,,	C.	Normal	,,	—
43	28	1	60	2	...	,,	C.	Mitral obstruction	,,	—
44	32	8	14	2	7	Subacute	C.	Normal	,,	Birth of each child accompanied by rheumatism.
45	41	1	14	1	11	,,	C.	,,	,,	—
46	16	4	4	1	41	Moderate	C.	Mitral regurgitation	,,	—
47	17	1	5	1	8	,,	C.	Normal	Sod. salicylate, pot. iod.	—
48	51	1	28	2	25	,,	C.	Mitral regurgitation	Sod. salicylate	—
49	26	1	14	3	21	,,	C.	Normal	,,	—

A CASE

OF

CROUP IN A CHILD TEN MONTHS OLD;

TRACHEOTOMY; RECOVERY.

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The following case is one which seems worthy of record, for the operation of tracheotomy has rarely been performed under the age of one year, and still more rarely has it been successful at that age. In the present instance the exact nature of the laryngeal obstruction was not determined. I have called it "croup" from its clinical characters, but it is questionable whether it was one of simple laryngitis, or whether some other condition co-existed.

John T—, aged ten months, was brought to me as an out-patient on November 22nd, 1876, at the Waterloo Road Infirmary. The mother said that the child had been quite well until the 19th inst., when she noticed a slight cough. On the 20th the cough became "croupy," and was more troublesome. There was slight vomiting on the 21st. (The account to be got from the mother was, beyond the above particulars, extremely vague; the child had evidently been much neglected by the mother, and there were circumstances in her habits which invalidated her testimony, but which I need not further specify.) The child was at once admitted. Its condition was as follows:

A fine, well-nourished child, somewhat pale. Whilst quiet the respiration greatly embarrassed, and on the slightest disturbance loud stridulous inspiration and a loud clanging expiratory cough, with very great distress. Very marked recession of lower part of thorax and in episternal notch during inspiration. Face not congested; glands in neck distinct, but not enlarged; no general swelling of neck. Child swallows readily, but cannot suck well. Tongue clean. Fauces not well seen, but the tonsils appear reddened and swollen, and there is apparently some slight ulceration of the tonsils, but they could only be seen with great difficulty, and repeated efforts failed to see the pharynx. Voice in cry lost. Temperature 99°; pulse 144, very full and hard. Chest: percussion good; on auscultation of the back only stridulous *inspiration* could be heard over the right side; on the left side the sound mainly *expiratory*, with some mucous *râles*. *Treatment.*—℞ Vin. Ipecac. ʒss, Aq. ad ℥ss, one teaspoonful every ten minutes till vomiting is produced. To be placed in a warm ward (70° F.); steam vapour under tent; iced compresses frequently renewed to the throat.

Nov. 23rd, 1 p.m.—Slept a little during the night. The iced compresses were applied every quarter of an hour until 10 a.m. to-day, when, as no effect appeared to be produced by them, they were changed for hot fomentations, which have since been continued. The vomiting did not bring up any membrane. Respiration is now very hurried, 60 to 70 a minute, with a whistling sound, especially audible in inspiration. Pulse very rapid, jarring, not so hard. Temperature rose last night to 100°, at 11 a.m. to-day 100·2°, now 102°. No albumen in urine. Tongue very slightly furred. Tonsils red and swollen, with slight superficial ulceration. No false membrane to be seen. The chest in front is everywhere hyper-resonant. Fair resonance throughout the back, except at the apices, where it appears somewhat deficient. On auscultation there is whistling inspiratory sound over the upper half, but below this the respiratory sounds annulled. Faint whistling inspiration and expiration heard through left side. The inspiratory recession of the episternal notch and lower part of chest rather less marked than before. At 5 p.m. temperature 104·8.°

The condition of the child was now so distressing, and the need of relief so urgent that tracheotomy was decided upon, and accordingly performed under chloroform by Mr. Overman Day, the resident medical officer. We had also the valuable assistance of Mr. R. W. Parker, to whose large experience and aid much of the success of the operation was due. There was no special difficulty about the operation, though as will be seen later an obliquity in the first incision into the trachea rendered a second cut necessary before the tube could be inserted, and this not being made in the same line a valvular opening of V-shape resulted. However, the tube, a single silver one, was put in without great difficulty.

Very great relief resulted immediately. At 9 p.m. the child was quiet, though there had been frequent fits of coughing, and it was said that some very thin pieces of membrane had been coughed up. (What I saw did not appear to be more than tough mucus.) Bowels open twice; no vomiting. At 10 p.m. the child had slept quietly for half an hour; breathing quietly, respirations 60 a minute. At 1.30 a.m., November 24th, the temperature, which had been falling ever since the operation, reached 101·6°, at 3.30 was 102·8°; pulse slow; respirations 70; the child still sleeping when not roused; not at all restless. A fair quantity of secretion came up through the tube. No dulness in chest; slight rhonchus in back, especially right side.

November 24th, 7.30 a.m. Temperature, 103·8°; pulse 190; respirations 60. Is fairly quiet; very little discharge from tube; no membrane. Slept till 5.30 a.m., but not since. Takes plenty of milk.

25th, 11.30 a.m. Has had a pretty good night, sleeping twenty minutes at a time. Now looks quiet; tolerably free from distress; breathes easily. Swallows well, and apparently without pain. Pulse 150; less hard. Chest, resonance good; no sign of pneumonia. 2 p.m., temperature 99·8°.

At 10.45 p.m. it was found that no air was entering through the tube, and there was great distress, and the nurse incautiously removed the tube during the absence of the House-surgeon. At 11.30 p.m. the child was sleeping quietly, with free respiration, and no recession of the chest wall. At 3 a.m., November 26th, it still slept quietly. Pulse 160; respiration 46. The chest walls were now somewhat more drawn in than before. A little mucus had been expelled through the wound. The child swallowed well. At 11 a.m. still breathing quite easily. Temperature 100·4; pulse 136; respiration 36.

For the next two or three days the child went on fairly well, and as respiration was well performed there seemed no occasion to replace the tube. Respiration was carried on entirely through the larynx, the fistulous opening in the trachea giving exit to air and muco-pus on coughing. Fits of croupy cough, however, occurred, which at times were very troublesome. To relieve this inhalations of benzoin vapour and creosote vapour were used both atomised and with steam. In the intervals of the cough the respiration was quite free.

On November 27th the temperature rose to 103°, falling again to 99°; on the 28th it was only 98°. On the 29th it was noted that the child had passed a restless night, but without any marked symptom. The wound had now nearly closed, and all the mucus was discharged by the mouth. On the evening of the 30th the temperature began to rise, and at 8 a.m. on Dec. 1st rose to 101·2°, reaching 102·6° at 6 p.m. He passed a bad night on the 30th, the breathing being more or less stridulous.

Dec. 2nd.—Passed a very good night; only one fit of coughing. Temperature 100·4°; pulse 110; respirations 30, stridulous. Wound looks better; no air enters through it. At 1.30 p.m. I saw the child, and noted that the respiration was now continually stridulous, but there was no apparent distress. The lower part of the chest-wall was drawn in with each inspiration. On auscultation, air seemed to enter freely to bases of lungs posteriorly, with slight rhonchus.

Although there was no distress, it was evident that obstruction had returned, and that dangerous symptoms might at any moment set in. I saw the child again at 10 p.m., and found that he was now in very great distress, breathing at the rate of 60 to 70 per minute, each inspiration stridulous, and accompanied by a sort of croaking sound; occasionally breathing entirely ceased for a few seconds, and then there was a sigh of relief. There was great recession of the chest-walls on each side and of the supra-clavicular regions with each inspiration. On coughing a little air now and then came out of the wound with a bubbling sound. Temperature 100·6°; pulse 170, irregular and occasionally intermittent, at times hard and full, at others feeble.

It was now clear that something must be done to avert impending asphyxia, but owing to the absence of the house-surgeon on other duties I could get no assistance until 11.30 p.m., when I proceeded to reopen the wound. The child had now become quite unconscious and livid, breathing only at intervals; indeed, during the latter part of the operation it appeared to be dead. There was very great difficulty in finding the trachea. The tissues of the neck were greatly swollen and infiltrated; a quantity of softened œdematous fat, which broke down under pressure, and was with difficulty removed, filling the opening, and when near the trachea the thymus was found to be swollen and to project upwards over it. It was only by considerably enlarging the incision that the difficulties could be overcome. By this time respiration had entirely ceased, and no air therefore issued from the tracheal wound, so that I found it necessary to compress the chest in order to drive air out and discover the opening. As soon as this was done and a dilator introduced, artificial respiration was performed and the child revived.

An examination of the tracheal wound now showed the cause of the recurrence of dyspnœa. The first opening had been a valvular one of V shape, and the tongue thus formed had been pressed backwards into the trachea by the tube. After the removal of the tube there was no dyspnœa until the wound was nearly closed and the swollen subjacent tissues pressed upon the flap, when it was pressed backwards into the trachea. Bearing in mind the small size of the trachea of a child ten months old, the fact that the anterior wall is the most rigid part, and that such a weakening of the wall would allow of much more easy compression, it is easy to see how the obstruction occurred.

A silver tube was now introduced, care being taken that the flap was so drawn forwards as to be kept out by the tube.

The subsequent progress of the case presented no special features of interest. There was considerable swelling of the wound after the second operation. The temperature continued slightly elevated till December 6th, after which it was normal. Recovery was thence uninterrupted. The tube was removed on December 11th, nine days after the operation, having been left in so long in order to ensure complete adhesion of the tracheal flap to the tissues in front. On its removal the voice was natural, and breathing through the larynx easy. For some little time there was stridulous breathing when the head was bent down, relieved by throwing the head back, this being probably due to the collapse of the trachea at the weakened point. (The condition may be imitated by bending a piece of india-rubber drainage tube).

I was under some apprehension that a stricture of the trachea might ensue, and kept the child under observation for some time. But nine months later, when I saw it, the scar was quite small; the chest healthy and well formed, and it was evident that no ill result had followed.

It is only right to state that it was to the constant unremitting attention and great experience of the sister superintendent of the hospital that the successful issue of the case was mainly due. Nor must I omit to mention the care bestowed upon it by Mr. Overman Day, the resident medical officer, who performed the operation.

The successful issue of the case shows that even in so young a child tracheotomy may be performed with safety, and with a good result. It is not for me to discuss the surgical aspects of the case; the part of the surgical treatment which fell to my lot having been done at the bidding of urgent necessity to save life. But the question naturally arises, was the case one of membranous laryngitis, whether diphtheritic or no? This is, I think, a question which cannot be decided with certainty, as the so-called membrane coughed up was not sufficiently definite. Looking at the entire history of the case my belief was that the condition was one of acute laryngitis secondary to tonsillitis, possibly of diphtheritic nature. I do not think that the high temperature (nearly 105°) in an infant in the agonies of suffocation is any guide as to the etiology. Beyond this I should prefer to leave the diagnosis doubtful.

I can only find two cases of recovery after tracheotomy at this age,—one recorded by Mr. Howse in the 'Guy's Hospital Reports,' vol. xx, p. 519, and another by Dr. Winiwarter in the 'Jahrbuch für Kinderheilkunde,' vol. x, 1876, page 377. Mr. Howse's case was probably one of syphilitic laryngitis.

I may add that the child is now (May, 1878) in perfect health.

ANATOMICAL VARIATIONS.

(III.)

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SENIOR ASSISTANT SURGEON AND LECTURER ON ANATOMY;

AND

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SENIOR DEMONSTRATOR OF ANATOMY AND JOINT DEMONSTRATOR OF MORBID ANATOMY.

During the past Session 1877-78 thirty-one bodies have been dissected. In these we have noticed the following more interesting variations :—

Pterygoideus Proprius.

An example of this muscle occurred in a male subject. The superficial fibres of the external pterygoid arose from its under surface. It was attached above to the pterygoid ridge, and below to the outer surface of the external pterygoid plate, and was almost entirely muscular. The maxillary head of the external pterygoid was deficient but not absent.

Similar cases have been reported by us,[1] and by Henle, Gruber, and Theile.

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[1] 'St. Thomas's Hospital Reports,' vol. vi, p. 75; 'Journ. Anat. Phys.,' vol. vii, p. 160.

Supernumerary fibres to Scalenus anticus.

This variation was observed in the left side of the neck of a male body. It consisted of a number of fibres, arising by tendon from the inner border of the upper surface of the first rib, immediately behind and continuous with the rest of the *scal. anticus*, also from the anterior surface of the apex of the pleura, and inserted by two digitations into the anterior tubercles of the transverse processes of the sixth and seventh cervical vertebræ. The slip was two inches long, tendinous at its origin and fleshy at its insertion. It lay behind the second stage of the subclavian artery, parallel with the *scalenus anticus*, and at its insertion sent forward a few fleshy fibres to blend with that muscle.

The more common accessory scaleni bundles have been arranged under distinctive names from the time of Albinus, and the present case is one of the varieties known as sc. minimus. The sc. lateralis is a separate portion of the sc. posticus, and the sc. accessorius similarly a hinder and free portion of the sc. medius. These and the unnamed varieties are perhaps of value as indicating the transition from levatores costarum which the scaleni appear allied to, a relation borne out by their arrangement in birds (Mivart).

This appears to have been a case in which the scalenus anticus was perforated by the subclavian artery, and the deeper portion remained very distinct and attached to the pleura. It is described by Meckel after Albinus as the *sc. minimus*, but no mention is made by him of attachment to the pleura, and Meckel states[1] that it usually lies in front of the axillary vessels. Macalister,[2] however, makes the *sc. minimus* to be attached to the second rib, and, curiously enough, on Meckel's authority. The original text[3] of Albinus is clear enough: "minimus, qui valde parvus, oritur a summo margine costæ primæ, statim pone Priorem" (*i.e.* sc. ant. vel prior), but the relation of this slip to the artery and to the pleura is not here referred to. Dr. Sibson has described the attachment of fibres from this muscle to the pleura, but these observations do not seem to have been noted in anatomical text-books.

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[1] 'Descriptive Anatomy,' vol. i, p. 224.

[2] 'Trans. Royal Irish Academy,' vol. xxv.

[3] Albinus, 'Hist. Musculorum hom.,' p. 404.

Third belly to digastric muscle.

On the right side of the neck of a male subject the digastric presented a third belly, arisising from the lower border of the body of the inferior maxilla just by the groove for the facial artery. From this origin the fibres passed downwards and forwards to blend with the anterior belly of the muscle, a kind of tendinous septum being interposed between the two at their line of junction. The extra head was fleshy in its entire extent, and very nearly as large as the anterior belly. The facial artery lay upon it, as it crossed the lower border of the jaw.

This variety is interesting, as in those cases in which the digastric receives an accessory slip from the lower jaw, that slip usually joins with the posterior and not the anterior belly (Henle). Macalister[1] describes as many as nineteen varieties of this muscle, but among these there is none resembling the present case. He refers to a special set of fibres extending from the hyoid bone to the chin in front of the anterior belly (*mentohyoid*) as a differentiated portion of the *platysma*, and some others of the varieties connected with the anterior belly may be of the same nature, but in the present case the fibres lay too deeply and ran in a wrong direction for such an origin to be suggested.

Costo-thyroid muscle.

This abnormality, present on the right side of the neck of a muscular male, was a flattened band of muscular fibre arising from the inner border and lower surface of the first rib, immediately behind the impression for the rhomboid ligament, and inserted into the posterior extremity of the oblique line of the thyroid cartilage. In its course it crossed over the internal mammary artery, the first part of the subclavian, and lay on the front of the carotid sheath.

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[1] 'Loc. cit., p. 32.

The muscle was about half an inch broad, and fleshy throughout. It was separated from the sterno thyroid of the same side by the sterno hyoid.

This variety is probably a displaced slip of the sterno thyroid attached to the first rib farther out than the rest of the muscle. Somewhat similar arrangements have been described by Wood,[1] Hallet,[2] Haller,[3] and Macalister,[4] and Albinus[5] refers in general terms to it.

Accessory Genio-hyoid muscle.

This occurred in a female body, and arose from the front of the body, also from the lesser and part of the greater horns of the hyoid bone, and was inserted into the upper genial tubercle of the lower jaw. It lay superficial to both genio hyoids, overlapped the anterior part of the hyoglossi, and was covered by the mylohyoid. The muscle was a distinct mesial slip, triangular in form with base downwards, and with no indication of being divided into halves.

It seemed very much like the mentohyoid (Macalister), occupying a position deep to the mylohyoid instead of over it. Such an arrangement has not, as far as we are aware, been described before. Macalister[6] mentions that in one instance he saw the mentohyoid inserted into the geniohyoid when the mylohyoid was partly deficient, but such was not the condition in the present case.

Levator anguli scapulæ.

In one case, in both sides of the neck of a muscular male, a strong fasciculus of muscle arose in common with the first

[1] 'Proceed. Roy. Soc.'

[2] 'Edin. Med. Journ.,' 1854.

[3] 'Element. Physiol.,' vol. iii.

[4] Loc. cit., p. 26.

[5] 'Hist. Muscul.,' p. 204.

[6] Loc. cit., p. 33.

digitation of the levator anguli scapulæ, and was intimately blended with it for an inch and a half of its course. It then ran parallel with the lower fibres of the splenius, across the other digitations of the levator anguli scapulæ, and was inserted by aponeurotic fibres, interlacing with the posterior surface of the tendon of the serratus posticus superior.

This extra slip was probably a separate piece of the splenius colli, arising in common with the levator anguli scapulæ, but it has been described under different names by observers *adjutor splenii* (Walther), *singularis splenii accessorius* (Haller) and is evidently continuous with the *rhombo-atloideus* of Macalister.

In another case the levator anguli scapulæ had a distinct attachment by tendon to the upper surface of the first rib, between the attachments of the Scalenus medius and cervicalis ascendens. This appears to be very unusual.

Stylo-chondrohyoideus

occurred in the left side of the neck of a female subject, and had the same anatomy as a similar variety described by us in a previous paper.[1]

In the present case the styloid process was very short, all the styloid muscles arising together. The muscle replacing the stylo-hyoid ligament was about half an inch broad, fleshy throughout, except an inch at its lower end. It arose from the apex of the short styloid process, and was inserted into the lesser horn of the hyoid bone.

Transversus nuchæ.

This variety was observed in one case, and in that present on the right side only. The muscle was made up of four or five isolated bundles of fleshy fibre attached internally to the external occipital protuberance, and externally to the skin over the mastoid process. It lay superficial to the sterno-mastoid, which had an attachment to the entire length of the superior curved line of the occiput.

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[1] 'St. Thomas's Hospital Reports,' vol. vii, p. 241.

Our experience does not lead us to the same conclusions as Professor F. E. Schultze[1] as to the frequency of this muscle. In eighteen out of twenty-five cases he found some modification of it, and Macalister found it in seven out of twenty.[2] The latter author says, "this muscle is always symmetrical, and the two opposite sides usually are connected in the middle line," but it is somewhat uncertain whether this observation may not refer to the deep form of transversus nuchæ. In the case here noted it was unilateral.

Muscular slips on central tendon of diaphragm.

These lay on the left side of the abdominal or under surface of the central tendon, occupying a position internal and external to one another.

The internal one, one and a half inch long by three quarters of an inch broad, was attached to the middle of the left leaflet, and anteriorly blended with the muscular fibres on the left side of the œsophageal opening. The external slip, 2 inches long, one and a quarter inch broad, was attached posteriorly in common with the internal one, passed forwards and inwards, and lost itself on the middle leaflet near its junction with the left one. Both bundles of fibres lay on the part of the diaphragm opposite the apex of the heart.

Very few irregularities of this kind appear to have been recorded. Merkel quotes Huber[3] as having described "on a part of the inferior face of this tendon muscular fibres separate from the others," and other slips are described extending from the central tendon to the liver, &c., but, as far as we are aware, not resembling the case here recorded. The muscular fibres did not appear to be a direct continuation with any of the normal fibres of the diaphragm, although they blended somewhat with some by the left side of the œsophageal opening.

Rectus sternalis.

Only one specimen of this has occurred this session, and was found on both sides, the right being smaller than the left, which was half an inch broad, and extended from the cartilage of the seventh rib close to sternum to the fascia over the first part of the gladiolus.

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[1] 'Schmidt's Jahrbuch,' bd. cxxvii, p. 288.

[2] Loc. cit., p. 4.

[3] From Sœmmerring's 'Muskellehre,' p. 162.

Chondro-epitrochlearis.

This was noticed twice. In one case it was present on the right side only of a male body. It arose by a fascial origin from the cartilage of the sixth rib, and was inserted into the internal intermuscular septum near the internal condyle. The band, immediately after its origin, became muscular, and in its course lay parallel and close to the lower border of the pectoralis major, and in the upper part of the arm completely covered the brachial artery. At the junction of the middle and lower thirds of the arm it became tendinous, was joined by strong aponeurotic fibres from the fascia over the triceps, and then passed underneath the brachial artery from without inwards to blend with the internal intermuscular septum.

In the other case, the muscle was present in both arms of a female subject. It arose from the posterior plane of insertion of the pectoralis major, and blended with the internal intermuscular septum at the internal condyle. The band, in this instance, was tendinous throughout, and had very much the same size and appearance as an ordinary plantaris tendon. It crossed in front of the brachial artery and the junction of the lower and middle thirds.

Examples of this abnormality have been fully described, especially by Wood,[1] Struthers,[2] Curnow, and others, and we record them simply as occurrences of no great rarity.

Pectoralis minor.

In one instance the pectoralis minor was very slightly attached to the coracoid process, but sent a large tendon of insertion underneath the acromion to blend with the anterior border of the coraco-humeral ligament.

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[1] 'Proc. Roy. Soc.'

[2] 'Anat. and Phys. Obs.'

This tendon did not join with the coraco-acromion ligament, as detached slips of the insertion of the pectoralis minor from the coracoid process usually do, when present. One case is reported by De Souza[1] in which almost similarly the *pectoralis minor* tendon passed entirely into the capsule of the shoulder-joint.

Accessory supinator muscle.

This arose in common with the supinator longus, from the front of the upper two thirds of the external intermuscular septum, and was inserted into the oblique line of the radius. The muscle was flat, about an inch broad, and four inches and a half long, and fleshy throughout. In its course it lay on the musculo-spiral nerve, radial recurrent artery, and tendon of the biceps.

Its presence could not be ascertained in the opposite arm, as amputation had been performed through its middle third.

Among the comparatively few abnormalities to which the supinator longus is liable we find only one case resembling this, described by Mr. John Wood, and in this the muscle did not appear to be so distinctly an accessory muscle, but rather, as he describes it, a double tendon of insertion.

This variety is interesting, as it presents a close resemblance to what is found in some reptiles. In the Iguana and chameleon the supinator longus is large and double (Mivart),[2] and the deeper portion (s. accessorius) appears to have a very similar attachment to the abnormality here described.

Second head to palmaris longus.

This was derived from the inner side of the fleshy part of the flexor carpi radialis, and had very much the same size and appearance as an ordinary palmaris longus. Its muscular part was about one inch and a half long, and its tendinous about three inches. It blended with the outer border of the palmaris longus tendon in the lower third of the forearm.

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[1] 'Gaz. Med. de Paris,' 1855, No. 12.

[2] 'Elem. Anat.,' p. 333.

Peculiarities in this most eccentric of all muscles in the body have been fully described in a special memoir by Gruber, and the present is only one of the many varieties of a double-headed palmaris.

Extensor ossis metacarpi pollicis.

In two bodies, and in both forearms of each, the extensor ossis metacarpi pollicis had the following arrangement. A little above the wrist it divided into three tendons of nearly equal size, all passing through the same sheath in the annular ligament.

The outer tendon joined the abductor pollicis, the middle was the tendon of the ossis metacarpi in normal position, and the inner one became the extensor primi internodii.

Cases similar to this have been described by Curnow,[1] and a very similar arrangement is recorded by Carver[2] to have been found in an idiot.

Varieties in peroneus tertius.

In a female body there was no peroneus tertius in its ordinary position, but upon the dorsum of the foot a tendinous slip ran from the front of the peroneus brevis tendon behind the external malleolus. This shortly became muscular, and split into two parts near the little toe, the tibial portion ending in a tendon on the base of the first phalanx of the little toe, the fibular portion being muscular and inserted into the base of the fifth metatarsal bone on the dorsum.

In another case (female, left side) a slip passed on to the dorsum of the fifth metatarsal and adjacent side of fourth. A good-sized slip was continued to the base of the fifth proximal phalanx.

In a third (male, right side) the peroneus tertius was inserted into base of fifth, and continued to the bases of fourth and third metatarsals. In this case the *ext. prop. poll.* sent a tendinous process to the base of the first phalanx.

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[1] 'Journ. of Anat. and Phys.,' vol. x, pt. iii.

[2] 'Journ. An. Phys.,' vol. viii.

In a fourth male the muscle was large, and was inserted into the bases of fourth and fifth metastarsals.

Peroneus tertius is often eccentric in its arrangement, and at its attachment to the fibula can usually be traced considerably higher than is usually described.[1]

A bronchial artery arising from the internal mammary.

This rare variation was present in the right side of a female subject. It arose from the right internal mammary, about a quarter of an inch from the commencement of the artery, and passed down by the side of the trachea, under the vena azygos major, to enter the posterior surface of the root of the right lung. The artery was the size of a good-sized probe, and rather tortuous in its course. Besides this means of supply to the lung there was a normal bronchial artery coming from the first aortic intercostal. The superior intercostal also of the right side gave off a number of œsophageal branches.

Varieties in thyroid arteries.

In the right side of neck of a male body the common carotid gave off a short thick branch to the thyroid gland from which two or three small branches descended along the side and front of the trachea to supply the fascia and glands at the root of the neck.

The descending branch of the superior thyroid artery also took a curious course. After going off the crico-thyroid branch it entered the substance of the thyroid gland, made one or two twists, giving off a few small branches to the gland, and then recurved over the carotid sheath to become the sterno-mastoid artery.

The inferior thyroid artery of the same side arose directly from the first part of the subclavian, and then ran normally to its distribution. A small thyroidea rima was present from the innominate.

These varieties were absent on the opposite side.

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[1] Compare Wagstaffe, 'Journ. Anat. Phys.,' vol. v, p. 277.

Posterior scapular artery.

In one case this artery ran thus :—It arose from the *first* stage of the axillary, ran down on the axillary surface of the serratus magnus for the distance of an inch and a half, then pierced the muscle and ascended on its dorsal surface to the upper angle of the scapula, from which it descended in its normal position.

There was a small transversalis colli present ending as the ascending cervical branch.

Common iliac veins and vena azygos minor.

In one case the common iliac vein of the left side did not join the right one in the usual position, but passed up the left side of the aorta, and after receiving the left renal vein crossed in front of the aorta to unite with the right one.

A small vein, about a quarter of an inch in diameter and three inches and a half long, ascended from the right internal illiac to join the left common iliac vein on the last lumbar vertebra. This cross branch received the middle sacral vein.

In another subject there were two left common iliac veins, placed one above the other, and uniting with the right one at the beginning and ending of its course. The last lumbar vein of the left side joined the upper branch.

In a third case the vena asygos minor was very large. It united with the left common iliac vein below, and passed through the normal opening in the diaphragm. On its way it received the left lumbar veins, and joined the left renal, which in this case crossed behind the aorta.

ON A POSSIBLE SOURCE OF FALLACY

IN THE

MEASUREMENTS OF THE LOWER LIMBS.

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There are few virtues in the medical student more to be encouraged than accuracy, and while insisting upon this in the out-patient room and in the wards I have for some time past demonstrated its importance in relation to a class of cases of very common occurrence.

I should not have submitted this communication had it not been that the principles contained in it seem to be unknown to those with whom I have conversed upon the subject. At a consultation upon a case of supposed injury to the hip last summer the idea here brought forward was entirely scouted by a very able friend holding a high position in the surgical world, and it was only after having the principle of it demonstrated that he seemed inclined to trust his own eyes and his own measurements.

I have looked and looked in vain for any observations on the effect of tilting of the pelvis on the apparent and real inequality of the lower limbs. It seems somewhat surprising that in giving directions about measurements in dislocation, fracture, and disease, so few authors lay stress upon the importance of keeping the pelvis level when measurements are taken. Mr. Le Gros Clark[1] certainly insists upon it in comparing the limbs when an injury about the hip-joint is suspected, but I have failed to find anything like an estimate of the effect of tilting on the ordinary measurements in such cases. I do not mean to suppose that the majority of surgeons are not aware that it is necessary to put the patient straight before taking these measurements, but I certainly think that few are aware of the amount of difference that can be made by allowing the pelvis to be tilted, and that dressers are not usually impressed with the necessity of care in this respect.

Is it, for instance, known that a fractured femur may be really shorter by an inch and a half, and yet by measurement from anterior superior spine to inner ankle the two limbs may be equal? And is it known that when in hip-joint disease the limb is drawn up so as to appear much shorter than the other, it will be found by measurement to be very much the longer? And, finally, is it generally understood that by want of care in arranging the body a difference may be found of about two inches in the lengths of the two limbs, and yet there may be no real shortening whatever?

The descriptions and illustrations in our text-books and in special works on surgery of the hip, although excellent as a rule, are deficient in carrying any warning against the possibility of error in diagnosis from the cause, and they, moreover, rather tend to mislead in many instances. With reference, for instance, to fracture of the neck of the femur it is said[2] that "the heel corresponds to some part of the region between the tendo achillis and the internal malleolus of the sound side," and forthwith a drawing is given showing this relation, and also showing an amount of tilting of the pelvis which, if not corrected before measurements were taken, would naturally interfere with any correct observations.

I have elsewhere[3] drawn attention to this subject but only in general terms, and my object in this paper is to show how an effect on the apparent and real length of the limbs is produced by tilting of the pelvis, and to try to estimate the extent of this effect, and if possible, to draw some ready rule by which such effect may be determined.

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[1] 'Outlines of Surgery,' 2nd edition, p. 248.

[2] 'Treatise on Fractures,' by R. W. Smith, p. 2.

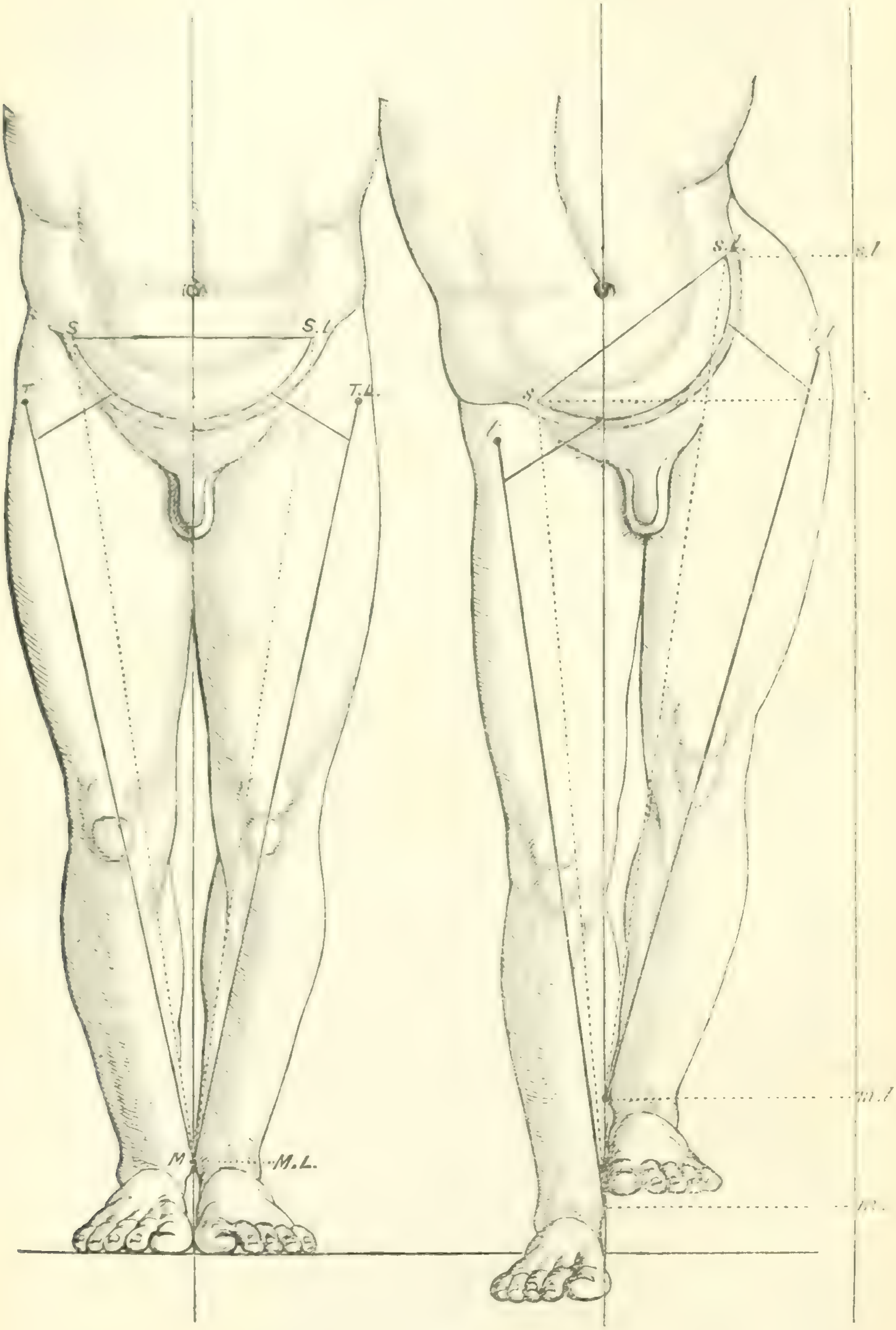
[3] 'Human Osteology,' p. 316.

In the accompanying diagrams the two figures are drawn upon the same scale, and care has been taken to make the proportion the same. In the left hand figure (fig. 1) the pelvis is made horizontal, and the right (fig. 2) it is extremely tilted.

The ordinary measuring line from the anterior superior spinous process of the ilium to the inner malleolus is indicated by a dotted line; the dark lines represent the lines of continuous bone between the same points. The pelvis is made to rotate round a point corresponding with the umbilicus.

Now, it will be obvious upon looking at the diagram in which an excessive amount of obliquity is purposely drawn that when the pelvis is tilted to an extreme degree, the legs being kept in the vertical line of the body, the anterior superior spine of one side (*s*) is brought down close to the trochanter (*t*), while on the other side it is widely separated from it (*s l* from *t l*). The length of the bony part of the limb (*t* to *m*) remains in each case the same, so that the actual difference in measurement will be the difference between the distances separating the respective spinous processes from the trochanter of their own side; and the increase in length is on the side which to the eye appears shortened, while the apparently elongated limb measures considerable shorter than the other.

As the difference of the distances separating the respective spinous processes from the trochanters of their own sides is the key to the explanation, it might seem a ready method to examine these distances carefully in all cases, and a comparison of such measurements would be of great value in the working out of the question; but the tip of the trochanter is often so difficult to define that it cannot be taken as a safe landmark for measurement, neither is it all easy to take the difference between the two measurements from the level of the anterior spines to those of the trochanters, so that some other ready means for estimating the fallacy must be devised. But as the trochanters move up or down so do also the corresponding limbs, so that the levels of the malleoli, which are much more readily determined, may be made to serve the


S
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purpose of measurement instead. This is not absolutely accurate perhaps, but has been so nearly so in the experiments I have made that I am convinced it may be acted upon, and it is so ready of application that it is of practical value, whereas the other is not. This is true in the case of a healthy normal pelvis, but it is even more practically important where there is deformity from dislocation or fracture, for then the trochanter is more difficult to make out clearly.

It will be noticed by reference to the diagram that in fig. 1 the lines *s m* and *s l, m l* are equal, and these are the lines of ordinary measurement. In fig. 2, where the pelvis has been tilted, these lines are altogether unequal. If *s m* originally was thirty-six inches the length of *s m* is now thirty-five inches, or one inch less, whereas *s l, m l* has increased to thirty-seven and a half inches, so that the total difference is two and a half inches by measurement between the two limbs.

Now, the levels of the opposite trochanters or of the malleoli should be at the same distance from the levels of the anterior spines, and are so in fig. 1, where the measurements are equal, but inasmuch as the spines (*s* and *s l*) are brought nearer to or taken further from the trochanters or malleoli so the limb is shortened or lengthened in its measurements, and it follows necessarily that the difference between these levels will indicate the difference between the measurements. In fig. 2 this is exactly shown. The difference between the levels of the two anterior iliac spines is here figured as seven and a half inches by scale, that between the malleoli five inches; and it is the difference between these two which indicates what would be found in measuring the two limbs in the ordinary way with such an extremely tilted pelvis; and if this is true of an extremely tilted pelvis it is true of a slightly tilted pelvis, though, of course, the apparent difference in measurement is less.

I cannot but think that those authors who have credited the early stages of hip-joint disease with being marked by an elongation of the limb must have overlooked this source of fallacy in measurement. The pelvis is naturally tilted on the affected side, and if this be not corrected the measurements would show an apparent elongation of the affected limb.

The following cases have been examined at different times, and have been arranged in the order of their height. The first twelve were healthy well-developed, persons with equal limbs.

Case 1.—Male æt. 20, height 180 cm. (5 ft. 11 in.) normal measurement of lower limbs or length from anterior superior spine of the ilium to internal malleolus, when the pelvis was level, 91·5 cm.

By tilting his pelvis himself it was possible to make a difference in measurement of 1·5 cm. When the right hip was raised that limb measured from ant. sp. to int. mall. 1·5 longer than the left. When the left hip was raised the left limb measured 1·5 cm. longer than the right.

Case 2.—Male æt, 31, height 178 cm. (5 ft. 10 in.), normal measurement of lower limbs 87 cm.

In this case there was a difference in the mobility of the pelvis on the two sides, and consequently a considerable difference in the measurements of the two limbs under different conditions. When the right hip was raised the right limb measured 1.5 cm. more than the left; when the left hip was raised the left limb measured 2·5 longer than the right.

Case 3.—Male æt. 22, height 168 cm. (5 ft. 6 in.), normal measurement of lower limbs 77·5 cm.

There was a slight difference here in the mobility of the pelvis on the two sides and consequently a difference in the extremes of measurement, but here it was in favour of the right side, and this appears to be the general rule. When the right hip was raised the right limb measured 2·5 cm. (or one inch) longer than the left; when the left hip was raised the left limb measured 2 cm. longer than the right.

Case 4.—Female, æt. 42, height 157·5 cm. (5 ft. 2 in.), normal measurement of lower limbs 77·5 cm.

Here, as was rather anticipated, the pelvis being more mobile, the difference of measurements was greater than in the other cases. When the left hip was raised the left limb was 3·5 cm. (or nearly 1½ in.) longer than the right.

Case 5.—Male, æt 16, height 155 cm. (5 ft. 1 in.), normal measurement of lower limbs 86·5 cm.

This was a tall boy with unusually long legs and a rather freely moveable pelvis, and the difference in favour of the raised limb was 3 cm. in either case. When the right hip was raised the right limb measured 3 cm. (or about 1¼ in.) longer than the left; when the left hip was raised it measured 3 cm. longer than the right.

Case 6.—Male, æt. 12, height 140 cm. (4 ft. 7in.), normal measurement of lower limbs 72 cm.

Here the advantage gained was not so much as in the previous case, but rather more than the average in the adults, a result consistent with the greater freedom of movement in the pelvis in a boy. When the right hip was raised the right limb measured 2 cm., (or rather less than an inch) longer than the left; when the left hip was raised the left limb measured 2 cm. longer than the right.

Case 7.—Male, æt. 13, height 137 cm. (4 ft. 6 in.), normal measurement of lower limbs 72 cm.

Only the right limb was tested, but with a similar result to that found in the other cases. When the hip was raised the limb measured 3 cm. (or about 1¼ in.) longer than the other.

Case 8.—Male, æt. 12, height 137 cm. (4 ft. 6 in.), normal measurement of lower limbs 68·5 cm.

This boy had shorter lower limbs than the previous case, but was of equal total height. But he was not so lithsome, and his pelvis would not move with anything like the same readiness, and his measurements were not so different under the different conditions of tilting. The right side, however, was more movable than the left. When the right hip was raised the right limb measured 2 cm. more than the left. When the left was raised the left limb measured 1 cm. longer than the right.

Case 9.—Male, æt. 16, height 134·5 cm. (4 ft. 5 in.), normal measurement of lower limbs 71 cm.

This was a short but rather active boy with freely movable pelvis, and his differential measurements were large, but more especially on the right side. When the right hip was raised the right limb measured 3·5 cm. (or nearly 1½ inches) more than the left; when the left hip was raised the left limb measured 2 cm. more than the right.

Case 10.—Male, æt. 8, height 134·5 cm. (4 ft. 5 in.), normal measurement of lower limbs 58·75 cm.

Here the total height was the same as in the previous case, but the limbs were about five inches shorter, and with this shortening of the limbs there was a diminished mobility of the pelvis, and especially on the right side. When the right hip was raised the right limb measured only 1 cm. longer than the left; when the left hip was raised the left limb measured 2 cm. longer than the right.

Case 11.—Male, æt. 10, height 122 cm. (4 ft.), normal measurement of lower limbs 57·5 cm.

Here the right side was rather more movable than the left and the measurements differed proportionately. When the right hip was raised the right limb measured 2 cm. longer than the left; when the left was raised the left limb measured 1·75 cm. longer than the left.

Case 12.—Male, æt. 8, height 115 cm. (3 ft. 9¼ in.), normal measurement of lower limbs 56 cm.

Here the difference was the same on the two sides. When the right hip was raised the right limb measured 2 cm. longer than the left; when the left was raised the left limb measured 2 cm. longer than the right.

Case 13.—Male, æt. 9.

This was a case of imperfect development of one leg after infantile paralysis, and when the pelvis was carefully kept level the right limb was a quarter of an inch shorter than the left. When the left limb was pulled further down and the pelvis tilted, therefore, with the right side highest, the two limbs measured equal; when the left was pushed up, and with it the pelvis of that side, and the feet made to correspond, then the left limb measured half an inch longer than the right.

From the measurements above recorded, the effects of tilting of the pelvis may be seen to vary in extent, but always in the same direction. The greatest amount of difference obtained, with twelve normal cases, by tilting was 3·5 cm., or about 1½ in., and the least was 1 cm., or about two fifths.

The average was nearly the same on the two sides, but slightly in favour of the right—2·2 against 2·1—so that it may be stated roughly that by tilting the pelvis in a healthy subject, the limb on the tilted side will measure an inch longer than the other.

Moreover, it has been shown that the explanation of this is in the approximation or separation of the anterior superior iliac spine and the trochanter, and that the amount of apparent difference in two limbs, the pelvis being tilted, corresponds necessarily with the distance between the horizontal levels of the spines, less that between the malleoli. The necessity of care in maintaining a perfectly level pelvis when measuring the lengths of injured or diseased lower extremities cannot therefore be too strongly insisted upon.

TREATMENT OF HYDATID DISEASE OF THE LIVER.

By J. HARLEY, M.D. Lond., &c.

The origin and spread of echinococcus disease in man and the domestic animals is an enquiry which might employ the abilities of a Hunter, and satisfy the philanthropy of a Howard. It flourishes from pole to pole, and no sooner is our attention directed to its ravages in Iceland, than we are called to witness its equally extensive developement in Australia. Probably no intermediate country is free, for the Tænia echinococcus, like man and his chief brute campanions, is ubiquitous; and one fact in the history of the disease may be taken as proven, viz. where dogs abound, there echinococcus disease is plentiful. Twelve years ago I gleaned from the medical literature of Germany, France, and England, and almost to the complete exclusion of the countries above mentioned, one hundred cases of the disease which had come under treatment during the previous twenty years or so. On the present occasion I am able to present a synoptical view of 96 more, all of which except a few of Mr. Mac Gillivray's cases have come under notice since I published my paper, and the greatest number of these 72 have occurred in Britain, and may in the main be regarded as of indigenous origin. Has hydatid disease therefore increased in this country? I think not; believing that an explanation may be found in the fact that the disease is more readily diagnosed, and more frequently treated and recorded than formerly.

Hydatid disease of the liver is a formidable affection. It is easy of diagnosis, but its treatment requires uncommon care and vigilance, if that treatment, as I think it should, be directed to its radical cure.

As I am able to furnish a few good illustrative cases, I am encouraged to hope that these, and a review of the tabulated cases, will be of real help to those who may be called upon to treat the subjects of this disease. I shall apply my remarks to the elucidation of the following:—

1. The propriety of using means to promote adhesion of the outer surface of the cyst, or of the liver containing it, to the abdominal walls—in a word, adhesion of the visceral and parietal layers of the peritoneum, in order to prevent the escape of hydatid fluid into the peritoneal cavity when the cyst is opened.

2. The effect of simple puncture of the cyst, and its influence on the further development of the disease.

3. The use of the aspirator.

4. The electrolytic mode of treatment.

5. Treatment by acupuncture.

6, and lastly. The treatment for effecting a radical cure.

1st. As to promoting adhesion of the peritoneal surfaces. The repeated application of caustic (caustic potash, Vienna paste (Potassa cum Calce) or chloride of zinc), to the skin and subjacent tissue until the peritoneum is involved in inflammatory action, is the means employed. Nos. 19, 32, 46, 50, 56, 63, 64, 66, 69, 70, 71, 72, 73, 74, 76, 89, 91, 92, and 94, of my tables, vol xlix of the 'Medico-Chirurgical Transactions,' and Nos. 55, 79, 84, 89, of the present papers illustrate this practice. It will be seen, however, that in only six of these was the cyst opened by the action of the caustic. In the remainder the eschar was either punctured by a trocar or incised, on the assumption probably that the required adhesion had been effected. Of this, however, there is no evidence; on the contrary, from the general absence of signs of local peritonitis, and from the post-mortem examination in Case 73, in which three applications of caustic failed to effect adhesion, it might be inferred that this did not occur.

I have myself witnessed an extensive destruction of the skin and subcutaneous tissue without an approach to the desired result. On account of its inefficiency alone, such a clumsy and painful procedure should be for ever abolished from scientific medicine.

Experience, however, has shown, on the one hand, that previous adhesion of the peritoneal surfaces is not a necessary antecedent to the successful treatment of these tumours; and on the other, that the readiest way of promoting adhesion is to puncture the tumour with a hollow needle or a trocar of a size insufficient to relieve the distension of the cyst, when on its withdrawal the escape of a few drops of the liquid contents will usually occur, and set up a slight local peritonitis[1] and subsequent adhesion of the cyst to the abdominal wall. When a large trocar is used, and the distension relieved, either no adhesion is required, as there will usually be no escape of cyst contents, or if the latter event should occur from rapid refilling of the cyst, adhesion will be readily affected, as in the former case. Death from peritonitis arising from overflow of cyst fluid after puncture with a trocar is a rare event. It occurred in cases 5, 34, 38, 42, and 89; and in three of these cases it followed simple puncture. In the treatment of hydatid tumours of the liver, for radical cure we may therefore, I believe, disregard all question as to whether or not the cyst, or the peritoneal surface of the liver containing it, be adherent to the abdominal wall.

2nd. The next questions which I shall endeavour to answer are (*a*) the effect of simple puncture on the contents of the cyst, and (*b*) its influence on the further development of the disease.

The fluid withdrawn from every normal hydatid tumour of the liver is limpid, colourless, transparent, odourless, and of sp. gr. rarely exceeding 1012. When solid particles are found they are either scolices or the granules associated with them.

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[1] Clear hydatid fluid, apart from the larvæ of the animal, is regarded by some as innocuous. The fact that it is "chemically inert" proves nothing, the most virulent animal poisons are so. That the rupture of a hydatid tumour into the peritoneum does not always prove fatal, but sometimes causes only ascites, is rather a proof of irritation than the contrary. In the treatment by electrolysis, Dr. Fagge and Mr. Durham noted fluid effusion into the pleura in one case and into the peritoneum in three. The authors attribute it wholly to escape of fluid from the cyst during and after the operation. This assumes too much, for it is apparent that considerable irritation attended the process, and it is probable that some portion of the fluid was passed out by the serous membrane under the influence of irritation, partly by the galvanic needles, and partly from the escape of hydatid fluid. (See p. 298.)

On a second tapping, after a short or longer interval, the character of the fluid will be found almost always changed. It will be more or less turbid, considerably denser, and of a more or less decidedly bilious tinge (ochre coloured or greenish) and odour. This happens when inflammatory action has been entirely absent. If the cannula be kept in the cyst, after either the first or second tapping, it commonly happens that the dressings and bed clothes are saturated the next day and for some time after with a brilliant grass-green or gamboge coloured discharge,[1] and yet as far as its attachment to the liver is concerned the parent sac is as yet intact. This ready escape of bile into the parent cyst after tapping is an important event, and one which, so far as I know, has received very little attention either as to its cause or effects. The influx of bile is clearly due to rapid endosmosis through the parent cyst, and begins as soon as the tension[2] is relieved to any extent, or abolished by the withdrawal of fluid.

The effects of this influx of bile into the hydatid cyst is as I have said an important event. If the cyst open externally by a free passage, no harm whatever results, but the case is different if the sac be closed, or if the passage out of it be obstructed. In the first case, and when by the removal of a little fluid the tension is only diminished, the escape of bile is small in amount, and does little if any harm, but when a larger quantity transudes the sac it is apt to decompose, and the danger is in proportion to the capacity of the cyst and the quantity of fluid withdrawn.

The admission of bile and its decomposition within the sac is the first element of danger in the treatment of hydatid tumours of the liver. Its presence is a necessary result of tapping, and

[1] This is, of course, to be distinguished from the copious discharge of pure ropy bile which often occurs at a later stage, when the parent cyst has separated partially or wholly from the liver and left the open orifices of bile-ducts on the raw surface of the gland; the hydatid cyst, indeed, is very often in its origin a mere diverticulum of a bile-duct.

[2] The tension of hydatid cysts is one of their characteristic features. Dr. Stone measured that of Case 2 of this paper and found it to be between eleven and twelve inches of water.

its probable decomposition within the sac is an event which should be expected, in order that it might be met with prompt treatment. The rapid refilling of tumours after simple puncture and the febrile symptoms which often ensue are I believe mainly attributable to this cause.

It would appear then that the effect of simple puncture is, if only a small quantity of fluid be withdrawn, to leave the cyst and its contents unchanged; or, when its tension is sufficiently reduced, to cause the whole to be permeated by bile. We have now to enquire (*b*) what influence this has on the further developement of the disease. Pure bile, or bile diluted with hydatid fluid, has no deleterious effect on the growth of the parasite. The parasite will flourish in either, and so long as the contents of the cyst remain sweet, its growth may and usually does continue. But the case is different when decomposition of the fluid takes place, then the parasite, it would appear, is destroyed and the hydatid cyst is converted into a reservoir of unwholesome or even putrid fluid, the lining membrane is is hardened, the daughter-cysts become disintegrated, fatty matters and sometimes pigment are deposited from the bile, and a chronic tumour results, liable on depression of the health to increase by further accumulation of fluid.

If we now turn to the synoptical tables I and III, accompanying this paper, it will be seen that simple puncture was employed in 77 cases. In 30 of these (20 of Table III in which it was first of all employed; and the 10 fatal cases of Table I) it was wholly unsuccessful. Many of the cases in Table I are said to have been cured. I am sorry to say it, but neither reason nor experience allows me to assent to this conclusion. 13 at least were too short a time under observation to allow more to be said than that they were relieved. Besides these I have included 11 others in this category, and this is as much as the accounts of them warrant. There were 10 deaths. The remaining 23 cases I have classed as "recoveries," for I hold that the simple tapping of a hydatid cyst cannot result in absolute cure unless the cyst not only collapses, but becomes wholly absorbed. What evidence have we that this ever occurs? It will be said "the tumour can no longer be detected." I do not attach much value to such a statement. I have purposely given an account of a case (see Case 6, p. 325) to show that the parasite is not easily dislodged, and that there is a tendency to the redevelopment of the tumour after a period of apparent cure. Both Case 1, p. 306, and Case 2, p. 309, are also capital illustrations of this. In one the tumour persists, and living echinococci are found freely developing, while the daughter cysts are floating in "laudable" pus after an interval of 5 years: in the other after an equally long period of quiescence, a slight indefined fulness expands all at once into a tumour of its original dimensions, and its treatment leads to the suppuration of another cyst on the other side of the liver, which it was previously impossible to detect by percussion, palpation, measurements, or any other means at our disposal. Hence I am careful how I deduce a "cure" from the statement that no trace of the tumour was detectable, especially when this statement is made a few weeks or months or even two or three years after treatment.

I have known a patient, stated to be cured of the disease, present himself ten years afterwards with a full redevelopment of it. A long interval of time or a post-mortem examination, therefore, would alone satisfy me. Post-mortem examinations of those who have died of another disease some time after tapping of the cyst have not proved much in favour of absolute cure. I have only met with two such records.

1. Dr. H. L. Atkinson tapped a hydatid cyst with a small trocar; the man made a good recovery, but he was subsequently admitted into and died in the hospital, and a contracted hydatid cyst containing putty-like material which probably consisted of the daughter-cysts undergoing calcification and disintegration was found remaining. ('Australian Med. Jour.,' vol. xii, p. 289.)

2. A similar case recorded briefly by Mr. Hulke.

3rd. *The use of the aspirator.* The insertion of hollow needles into the cyst and suction by the aspirator has been used (see tabulated Cases 2, 3, 9, 11, 24, 44, 71, 73, 75, 81, 90, 94,) instead of puncture by a capillary trocar. It has this advantage over the latter, that when a minute hydatid cyst or fragment of membrane obstructs the capillary tube it may sometimes be drawn away and the flow re-established; but it is time enough to apply the aspirator when the obstruction happens. The hollow needle is only applicable for a first puncture; when the cyst is full of broken-down membrane and grumous fluid, it is obviously useless. But the aspirator may be sometimes connected with a large cannula or catheter in the process of radical cure, to facilitate the discharge of such fragments as will pass through the instrument inserted in the sac; but even in these cases its use is extremely limited (see Case 2, p. 319). We may, however, meet with cases in which the hydatid *débris* is fine enough to pass the needles. A case (tabulated cases 24, p. 334) in which 8½ pints of pus and hydatid *débris* were easily removed by the aspirator, has induced my friend Dr. Bradbury to remark, "Formerly I should in a case of *suppurating* hydatid cyst have recommended the insertion of a large trocar and a drainage tube; more extended experience, however, has taught me that it is much better to use the aspirator, and if one aspiration be not sufficient there is not the least objection to the operation being several times repeated."

Further experience of the use of the aspirator in this disease will I feel sure give no support to this view. Even when a wide tube is inserted in the sac, the exhausting syringe is a frail support to lean upon, and if I had trusted to it in Case 2, my patient would probably have been now in his grave.

Where there is no obstruction to the flow, as in a normal cyst, aspiration may do harm by causing too rapid a removal of the tension to which the surrounding parenchymatous parts have accommodated themselves. This was doubtless the case in 44.

4th. *The Electrolytic Treatment of Hydatid Tumours of the Liver.* This mode was suggested by Dr. Althaus, who used it on a horse. Since the publication of his recommendation the animal has died, and a careful examination proved, as my friend Mr. Mavor tells me, a great extension of the original tumour. The operation does not appear, therefore, to fulfil its primary object, viz. the death of the parasite.

Dr. C. H. Fagge and Mr. Durham, and also Dr. Handfield Jones,[1] have used this method. It consists in attaching two needles to the negative pole of a battery of ten cells, producing a current strong enough to decompose a saline solution; inserting these into the cyst at a distance of about two inches apart; a moist sponge in connection with the positive electrode being placed on the skin near the needles.

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[1] An abstract of the cases is given in Table II, p. 343.

The current was allowed to pass from ten to twenty-five minutes, when the needles were gently withdrawn, and the punctures covered with plaster. In two or three instances one or two drops of clear fluid followed the withdrawal of the needles, and in one case the skin around the needle became emphysematous (from decomposition of water) during the passage of the current, which always caused at once enough irritation of the tissues to produce distinct redness around the needles.

In some of these cases it appeared that a part of the contents of the cyst escaped about the time of the operation or shortly after. In Case 2 effusion into the pleura was discovered on the second day after the operation, and although the measurement did not indicate it, the bulging of the chest appeared to be greatly diminished. In Case 3 the cysts felt more flaccid and less defined on the fifth day after the operation, and there was a diminution of half an inch in the girth at one line. In Case 4, where there was assumed to be peritoneal effusion on the day following the operation, no mention is made of the tumour until the thirteenth day, when it was "softer, but perhaps not smaller." In Case 5 the left cyst was found to be much softer, and could not be distinctly felt directly after the operation. One of the authors thought this was due to rupture from much vomiting. Next day there was distinct fluctuation in the lower part of the abdomen (presumed to be in the peritoneal cavity). The right cyst was more tense immediately after the operation, but about an hour after, the patient having been sick in the interval, fluctuation in the abdomen was distinctly felt, and the cyst was softer. In Case 6 the tumour had decreased in size, and was no longer elastic on the fourth day. In Case 7, without previous vomiting or retching, the abdomen was already flaccid, and the fingers could now be passed under the edges of the ribs. There was no sign of peritoneal effusion, and the measurement of the body next day showed a decrease of an inch and a quarter.

The authors regard the rapid decrease of tension in the cyst and appearance of fluid in a neighbouring serous cavity as cause and effect. Even in Case 2 they think it "hardly possible that pleurisy set up at a single spot could have given rise to the exudation of so large an amount of fluid within forty-eight hours, and particularly without the patient suffering from more severe symptoms" than pain in the chest and at the points of introduction of the needles, a pulse ranging from 88 to 104, and temperature from 99·6° to 101·2° Fahr., and they conclude that the fluid was derived (in great part at least) from the hydatid cyst through a wound in the diaphragm made by the needles. I cannot concur in this view. According to my experience a large amount of pleuritic effusion not unseldom forms with equal rapidity, and very often with less pyrexia, and absolutely no pain. I take the effusion in this case to be entirely due to direct irritation of the pleura, and if this be the correct view then it follows that some peritonitis is to be expected in an ordinary case. Such results of the application of electrolysis, viz. pleural and peritoneal effusion, prove that this mode of treatment, if it do not introduce a fresh danger, at least increases that which already attends the treatment of this disease.

But granting that some of the fluid is the result of direct irritation of the serous membrane, the observations of Dr. Fagge and Mr. Durham undoubtedly show that part of it may be derived from overflow of the hydatid cyst. The elasticity of the sac is, no doubt, destroyed at the seat of puncture; and the current being strong enough to decompose water hydrogen is liberated. It is therefore reasonable to suppose that in a cyst already tense with fluid, a portion of this would necessarily be displaced. When the sac is not punctured at its most prominent part, the hydrogen would produce corresponding resonance, as occurs when gas is liberated by putrid decomposition within it (see Case 2, pp. 317, 318). The quantity of hydrogen evolved, though sufficient to increase the tension of the cyst would, however, be generally too small to be detected by percussion.

Taken as an accepted result of the use of electrolysis the escape of fluid from the sac deserves careful consideration. As yet we have no positive evidence that the current used as above described can destroy the life of the parasite. Dr. Althaus used it much more thoroughly in the horse, yet this result was not achieved. If suppuration of the cyst may occur without destruction of the parasite (see Case 1, p. 307), we may certainly conclude that electrolytic decomposition of a minute portion of the contents of the cyst is totally inadequate to effect it.

It must be concluded, then, from the evidence before us that the electrolytic treatment causes an overflow into the serous cavity enclosing the tumour of such unaltered constituents of the hydatid cyst as will pass through the puncture made by the needles, and that this may contain living scolices.

This conclusion obviously brings with it a complete condemnation of this method of treatment. But what of the results? Eight patients have been treated by the method. All recovered. In all but two, however, some remains of the tumour were found on the last examination, and in two the liver was still low down. Case 3 came under treatment again in the course of a year. The assumption of the existence of a third cyst in this case is quite gratuitous; where was the position which was different from that of either of those previously operated on? of those which reached from the left nipple to midway between the ensiform cartilage and umbilicus on one hand, and from the margin of the ribs on the right side to the crest of the ileum? As a difference of opinion might clearly arise on such a point it would have been well if Dr. Phillips had stated the position of the third cyst. The actual seat of a hydatid cyst of the liver is not always what it seems; tumours which appear in the left hypochondrium are sometimes, not unseldom I believe, found to arise far away in the right lobe of the liver (see tabulated cases.) This fact should not be overlooked in deciding the true position of a hydatid cyst.

Speaking generally of the results of treatment in these cases, it probably agrees pretty closely with that by simple puncture. It is very doubtful whether a radical cure was effected in any case; time and the opportunities of post-mortem examinations can alone decide the question.

5. *Treatment by Acupuncture.*—Thinking that the escape of hydatid fluid from the cyst into the peritoneal or pleural cavity was, perhaps, an essential element in the success of the operations of electric puncture, Dr. Fagge and Mr. Durham suggest that electrolysis may be in effect a kind of subcutaneous tapping with effusion of the fluid contents of the cyst into a serous cavity.

They tested the practical value of this suggestion, and induced Dr. Playfair to introduce two gilt needles into the interior of a hydatid tumour of the liver at its most prominent points. After five minutes they were withdrawn. Some pyrexia followed and continued for a few days. When last seen (two months after the operation) the tumour was reduced to half its previous size ('Med.-Chir. Trans.,' vol. liv, p. 43).

The rise of temperature which began soon after the operation, and in twenty-four hours attained 102° Fahr., could not have been due to the presence of bile (see p. 294). We must therefore regard it as the result of peritoneal irritation, and, so far as it goes, a practical illustration of the view that the escape of normal hydatid fluid excites peritonitis (see p. 293).

I now come to speak of—

6. *The Treatment for Radical Cure.*—When we cannot cure, we properly seek to relieve; but if it be within our power to cure, then it is unworthy of the objects of our profession to endeavour merely to relieve, provided that cure can be effected without undue risk.

I have been at great trouble to glean and summarise all the published records of the cases of hydatid tumour of the liver. They are contained in vol. xlix of the 'Medico-Chirurgical Transactions' and in the tables appended to this paper.

A critical survey of these cases, coupled with a due consideration of the fact that radical cure cannot be effected by any means which do not secure the discharge of the parent cyst, and gradual healing of the cavity occupied by it, will I believe lead a careful medical practitioner to at once adopt treatment for the attainment of this object.

Puncture with a fine trocar or aspirator needle, and the letting out of a few ounces of fluid, is, *primâ facie*, a satisfactory proceeding. It is easily done, it demonstrates to a nicety the accuracy of diagnosis, is often unattended, just as puncture with a large trocar is, by any disturbance, and seems, in many cases, to effect a cure. The cure, however, is but seeming, and in the main the treatment is at best but a postponement of the evil day. It is far otherwise when a large cannula is inserted and retained. The operation itself is certainly attended by pain and febrile disturbance less frequently than simple puncture with a capillary trocar; but the utmost vigilance is required to secure the discharge of hydatid membranes and to prevent them from greatly impeding or altogether preventing the discharge of readily decomposable bilious fluid (see p. 294), the retention of which for forty-eight hours will certainly be followed by pyrexia, and very soon become a source of danger.

A clear conception of the nature and requirements of the case, and vigilant and patient care, will, I believe, very rarely, if ever, fail to secure the desired result.

I shall be pardoned, I trust, if I occcpy a little space in pointing out the nature and requirements of the case a little more explicitly, in illustration of a mode of treatment which has other advocates besides myself—notably MM. Demarquay, Paul, and Verneuil and Dr. Finsen, of Copenhagen.

To put a large cannula into a hydatid cyst and retain it there is undoubtedly a serious matter, unless we are alive to the necessity of carefully preventing impediment to the discharge of readily decomposable fluid which rapidly strains into the cyst. The secondary cysts entire, or the fragments of membrane resulting from their disintegration; and later on the wall of the parent cyst itself, and sometimes a dense fibrous membrane which is formed external to this, are the hindrances to be got rid of by patient and long-continued efforts day by day. A reference to pp. 308, 313, and 319, will show the means employed. As soon as the cannula becomes loose by suppuration, and this occurs at the end of seven or nine days, as large an elastic catheter as will pass is inserted, and the cannula slipped over it and withdrawn. Next day a second catheter, a No. 2 or 3, may be readily passed by the side of the former, and now that two are inserted the one becomes a guide to the other and we never lose the way into the sac. After an interval of a few days No. 2 may be replaced by No. 5 or 6, and even we may be able to change the larger one, No 9, say for No. 11 or 12; in the course of a day or two we may pass in the groove between them a No. 2 or 3, and so we proceed until three catheters of full size are inserted into the sac, the depth of which must be carefully gauged, and a little room given for the gradual contraction of the sac.

While the cannula is retained we must "fish" for the obstructing membranes around the internal orifice of the tube and try to hook them away. When the catheters are inserted and the passage dilated, we may inject a few ounces of fluid, preventing its return, and then on suddenly withdrawing two of the three catheters, we may—and especially if the movement be accompanied by a succession of little coughs—get a gush of fluid with the obstructing fragments of membrane. Frequently, indeed, we shall not succeed in this, but as often as we remove a catheter we shall find the eye blocked with membrane. If there be no urgency we may depend on this method of removal, until the way into the sac becomes sufficiently wide and direct to allow of the simultaneous removal of all the catheters, when if there be only moderate distension of the sac the forcible eruption of a heap of broken membranes may be expected. Sooner or later the whole contents of the cyst, including the original wall, will be thus extruded, and we shall be gratified to find day after day that what we inject by one catheter immediately returns by the other, and that we can soon cause a current of pure injecting fluid to circulate through the sac. Contraction of the cyst now takes place very rapidly, the discharge becomes odourless and entirely purulent. Only one catheter is now needed, and, no force or resistance, of course, being employed, it is gradually forced out of the sac and lastly out of the sinus.

It often happens after a free discharge of membranes, and long before the whole of the contents of the cyst have been discharged, that the injection freely circulates through the sac, flowing out as fast as it is injected, and then, next day it may be, there is an impediment. This results from the gradual separation of the parent cyst, which we recognise by its size and thickness; and we infer that it has been wholly ejected by the absence of further impediment, and the character of the discharge, which will be simply pus of good quality.

While we are endeavouring to clear away the cyst membranes, we must keep the contents of the cyst as sweet as possible, and hasten, if we can, the disintegration of the cyst membranes. I have freely used iodine injection (water rendered a sherry colour by the addition of the tincture) with a little kreasote or carbolic acid (♏ij ad ℥j) for this double purpose. I am not sure that softening of the membranes is effected by the iodine, but we may certainly harden them by using too strong a solution of carbolic acid, one of sulphate of zinc, or some other astringent, and this must be carefully avoided. When the cyst is completely empty, I have sometimes washed it out with zinc lotion; but if the discharge be healthy pus, this is not needed, and always maintaining a free outlet, it is best to leave the healing cyst alone.

It may seem to those unacquainted with this mode of treatment that it is painful and harassing to the patient. This is not really so, and pain and distress are alone experienced when the discharge from the cyst is impeded, or retained. When the contents of the sac are freely discharged there is no distress, and scarcely any discomfort, throughout. In injecting the cyst, great care must be taken to avoid undue distension, and the feelings of the patient, which we should carefully regard in this matter, will be a sufficient guide. If there have been no discharge for some hours, and a feeling of fulness in the cyst, we must not inject, but patiently remove the obstructing membranes, and then if fluid be discharged we may throw in a little disinfectant or wash out the cyst according to circumstances.

Table III, p. 346 *et seq.*, which contains an abstract of cases in which an effort was made, sooner or later, to evacuate the contents of the cyst, is pregnant with instruction.

Of the 31 cases there were 18 radical cures the result of operation; 2 radical cures by evacuation of the contents of the cyst through the lung, aided probably by a previous attempt to maintain an external opening; two (88 and 90) doubtful results; and 9 deaths.

The cases of radical cure are not all above criticism. Nos. 68, 73, 74, 79, 80, and 85, may be so regarded, for they serve to illustrate the great advantages that result from prompt treatment, and the formation of an opening sufficiently large for the discharge of the contents of the cyst.

Nos. 69, 70, 72, 75, 76, 77, and 84, on the other hand, prove the danger which threatened from retention of the discharge, but which was happily averted by making an opening into the cyst, or enlarging that already formed, and removing obstruction.

Case 82 illustrates in the treatment of both cysts the advantages of a free opening, and in the suppuration of one the danger resulting from putrid fluid pent up in a distended cyst.

But it is the fatal cases which require, and will well repay, a critical examination.

Cases 1, 32, 56, 57, 87, and the remaining ones to the end of the table form an interesting series, for they serve to illustrate an important fact in the treatment of hydatid tumours of the liver, viz. that if retention of the contents after puncture of the cyst be permitted there is great liability to spontaneous rupture into a neighbouring cavity or gland. The fluid rarely escapes into the peritoneum to any extent, as occurred in Cases 5 and 89; but local pain and tenderness often follow puncture, and this must be caused by a slight overflow, for the cyst itself is insensitive. If the cyst is connected with the larger biliary ducts, an effort will be made to discharge through their common opening into the duodenum, as happened in Case 95; but the most common event is adhesion of the base of the right lung and of the upper surface of the liver to either side of the diaphragm, perforation of the latter, and escape through the bronchial passages. The frequency with which this occurs as a consequence of puncture and the closure of the wound, or the insufficiency of the opening, is due to the admission of biliary fluid, and its results as described at p. 294, a danger to be anticipated and avoided.

The accident in all its phases is so fully illustrated in the cases, especially Nos. 56 and 91, that comments are unnecessary, and the conclusion to be derived from a consideration of the whole of the fatal cases is that, with the exercise of greater vigilance and a determination to secure the evacuation of the contents of the cyst, recovery, with radical cure, would have been a probable result in thirteen of the nineteen fatal cases. One thing is certain, that medical science cannot look with satisfaction on a case in which a post-mortem examination reveals a cyst full of putrid or inflammatory contents, pent up and ready to burst into neighbouring organs, and which might have been safely discharged through a suitable artificial opening. The foresight and decision required in the treatment of these tumours can only be obtained by experience of such a number of cases as will fall to the share of but a few of us. It was therefore desirable to bring together into one view the experience of others, and it was this which has induced me to undertake the task. The information to be thus obtained will, I believe, sustain the opinions which I have ventured to express, and which are often at variance with those of the authors who have furnished the materials for the compilation of my tables.

I have only only to add that I shall be pleased at any time to arrange a personal examination of the subjects of radical cure, whose histories I now proceed to relate, with any one who may be interested in them.

CASE I.—*Hydatid tumour of the liver; capillary puncture; temporary relief: persistence of the symptoms: second puncture with a large trocar about five years afterwards; discharge of echinococci and pure pus; complete evacuation, contraction, and healing of the sac.*

Sarah R—, now D—, æt. 23, a healthy young woman of moderate development, applied to me at the end of September, 1872, on account of an almost constant pain in the back, some distress after meals, and occasional vomiting, caused by a tumour deeply seated in the epigastrium. I am indebted to the courtesy of the Registrar of Guy's Hospital for the following history:

"In 1865 she began to experience pain in the back and side; a year afterwards she noticed that the right side was tender on pressure, and after a short time it appeared swollen.

"The swelling gradually increased until 24th April, 1867, when she was admitted into Guy's Hospital, under Dr. Wilks. At this time there was a circumscribed tumour, about three inches in diameter, in the epigastrium, extending rather further to the right than to the left of the middle line. It was distinctly fluctuant, rather tender on pressure, and she felt a constant throbbing in it (pulsation of the abdominal aorta). The general health was very good.

April 25th.—The tumour was tapped by Mr. Durham with a fine trocar, and about eight ounces of clear fluid was drawn off. Towards the end the cyst was pressed and the fluid came out milky. The milkiness could be seen by the naked eye to be due to granules, which showed themselves to be groups of echinococci, some with heads retracted and some with heads protruded, some apparently degenerating. The fluid was clear, with white sediment, of sp. gr. 1011, contained (?) a trace of albumin and a large quantity of chlorides.

28th.—Slight tenderness where she was tapped. Pulse 88; tongue clean; appears in perfect health.

30th.—She was allowed to leave her bed, and eight days afterwards was discharged.

Dec. 1st, 1871.—Four years and seven months afterwards she was readmitted under Dr. Wilks, with a hard, nearly defined swelling just below the cartilage of the right side over the liver. There was pain in the tumour going through to the back, but no tenderness on pressure. After the tapping the cyst never filled again, but has been getting smaller. The patient is in pretty good health, and only complains of pain in the tumour. Tincture of iodine was applied externally and the pain was relieved, and she went out of the hospital at the end of the week."

Ten months afterwards she applied to me at St. Thomas's Hospital. She stated that her symptoms had only been temporarily relieved, that she was conscious the tumour had undergone little or no diminution, that the pain had been constant and "wearing," with distress and occasional vomiting after food, and that she was very desirous of an operation for relief.

The tumour formed a uniform rotundity of slight elevation, the centre or hydatid part being midway between the tip of the ensiform cartilage and the umbilicus. The lower limit of the tumour lay about one inch above the umbilicus, and the upper an inch and a half below the ensiform cartilage. The tumour was dull, tense, obscurely fluctuant, and free from tenderness, but firm pressure upon the front increased the pain in the corresponding part of the back. There were three quarters of an inch of fat on the abdomen.

She was admitted into Alice ward (No. 12 bed) on 30th September, 1872, and her symptoms observed for a few days.

On October 10th I pushed a fine trocar through the median line into the most prominent part of the tumour. Two teaspoonfuls of very thick yellow pus, and two or three minute, glassy-looking cysts oozed slowly out. Finding the fluid thus thick, and anticipating danger from retention of the contents of the cyst. I withdrew the fine cannula and introduced a No. 12 and tied it in the wound, where it pulsated strongly in unison with the abdominal aorta. About two fluid ounces of thick pus and hydatid cysts were soon ejected with intermittent spurts, and during the day about ten ounces more. In the evening the discharge became deeply tinged with bile. The cysts were very numerous, and varied in size from a line to an inch and a half in diameter, they appeared like glass or bright jelly-like spheres, and were tough and laminated. The internal laminæ were milky-white, the enclosed fluid was clear or only slightly milky, and contained colonies of living, robust scolices, and the bodies of many were studded with bright calcareous corpuscles characteristic of the more advanced larvæ.

The same day the patient complained of much pain in the back, due, no doubt, to the pressure exerted by the cannula, for it passed through the thick wall of the cyst with some difficulty—and vomited several times.

During the next two days about twenty ounces of dark green fluid containing numerous cysts were discharged, the sickness and pain subsided, and she felt considerably relieved.

The discharge of cysts continued to the seventeenth day, and their ejection was secured by a hooked catheter wire passed through the cannula into the cyst.

The discharge of fluid was considerable, it was highly bilious for many days, and occasionally almost pure bile (dark brown and glairy), and stained the bandages sometimes deep green, and sometimes bright yellow. On the eleventh, and up to the fortieth day, the cyst was washed out every morning with iodine water (enough tincture of iodine, P.B., being added to water to give it the colour of dark sherry).

From the eleventh day to the time when the wound closed the fluid portion of the discharge was thick pus.

The cannula was removed on the thirty-fourth day and two elastic catheters introduced in its stead. As the cyst was fast contracting, and the discharge but slight, these were finally removed on the forty-third day.

On the fifty-second day she was made an out-patient. At this time she was completely relieved of her symptoms, had gained in weight from the prolonged rest, and was in perfect health. The wound, which was exactly midway between the tip of the ensiform cartilage and the navel, communicated with a sinus which allowed a probe to pass two inches, the abdomen was completely resonant below the level of the wound, and the tumour had completely disappeared. She presented herself at the hospital occasionally. The sinus was completely healed about the 200th day (June, 1873).

During the whole of the treatment there was a total absence of febrile disturbance.

A year afterwards she married, and in September, 1875, gave birth to a daughter. She suffered no discomfort during her pregnancy, and had a good labour.

I saw her in February. She had enjoyed perfect health since she left the hospital, and still retains her slender figure. A depressed scar, the size of the navel, occupies the middle line exactly midway between the umbilicus and ensiform cartilage. No trace of any swelling or of any enlargement of the liver remains at the present time (May, 1878).

CASE 2.—*Two hydatid tumours of the liver: capillary puncture of one cyst; refilling; a second puncture about fourteen weeks afterwards. After an interval of about five years, puncture with a large trocar; evacuation, contraction and healing of the sac; suppuration of a second cyst meanwhile; similar treatment and radical cure of this also.*

William C—, æt. 28, a healthy-looking, slender, active man, weighing under ten stone, was admitted under my care into Charity Ward on 24th June, 1872, for the relief of hydatid tumour of the liver.

He had been in the army and resided for two years in Malta, and had frequently drank of the impure water of the ponds there. He left the army about the year 1868, and has since followed the occupation of a shoemaker. For about two years before admission he had experienced pain between the umbilicus and epigastrium. Generally it was not very severe, but occasionally it "cramped him up." He did not observe any swelling until five months before admission, eight weeks afterwards it began to increase, and has done so rather rapidly since. Latterly it has throbbed so much (pulsation of the aorta) as to disturb sleep.

A dull, tense, fluctuating tumour occupied the interval between the ensiform cartilage and the umbilicus, it extended four inches on either side of the middle line, the lower rounded border was indicated by a fold of the abdominal wall one and a half inch above the umbilicus. Above, it was continuous with the left lobe of the liver, the most prominent part lying in the left hypochondrium, and the corresponding border of the ribs was bulged upwards and forwards. The girth of the body at the tip of ensiform cartilage, with an empty stomach and after full expiration, was thirty-three and a half inches, after full inspiration thirty-five inches. Two inches lower down the measurements were thirty-three and thirty-four and a half inches. There was no appreciable encroachment on the thoracic cavity. Pressure on the tumour caused uneasiness, and then the aortic pulsation was palpable. A capillary trocar was introduced through the middle line into the centre of the tumour. After evacuation of eight ounces of colourless almost clear watery hydatid fluid, it ceased to flow and the cannula was withdrawn.

During the next four hours there was a good deal of pain in the tumour, and he vomited frequently. The sickness continued through the night, and in the morning the face, neck, upper part of the trunk, and the arms and legs were covered with a fine urticarious rash, resembling the abundant dusky rash usually seen in the severer forms of scarlatina. Pulse 96, temp. 101° Fahr. Twenty-four hours later on the rash and other indications of irritation were absent, and the general condition of the patient was normal. The tumour was painless, free from tenderness, only barely visible, but palpable as a soft fluctuant cyst.

He continued well, and left the hospital on the thirteenth day. At this time the girth of the body at the lines above indicated was one inch less than before the tapping. During the next six weeks he presented himself occasionally for examination, and it was found that the tumour was increasing in tenseness and size; and *seventy-five days* after the operation the measurements were slightly greater than they were when the patient first came under observation. He was readmitted into Charity Ward on this day, and four days afterwards a number 12 trocar and cannula were passed into the tumour through the site of the former puncture, and twenty-eight fluid ounces of odourless straw-coloured fluid, pretty clear, but chiefly turbid, containing numerous colonies of living echinococci and shreddy membranous matter.

The cannula was secured in the wound, and an elastic catheter inserted through it. No disturbance, either constitutional or local followed; there was for some days a moderate discharge of fluid. As soon as the discharge ceased the patient, who was better, considered that the tumour was cured, and removed the cannula. When this was discovered there was some difficulty in reintroducing it, and my impression was that it did not again enter the sac, for although it was worn, guarded by india rubber tubing inserted within it until the fortieth day, there was no discharge, and attempts to inject fluid were not successful. He left the hospital thirty days after the second tapping in perfect health, and with no evidence of any remains of the tumour.

I did not see him again until the 6th March, 1877, four and a half years after the last operation. He presented the same healthy appearance as he did at first and his weight was unchanged, and he has since had three children. He states that he has enjoyed perfect health, and has followed his occupation, which requires a position in which sitting and stooping are combined, without inconvenience.

The left costal margin is now nearly level with the right. On standing, a slight fulness of the epigastric region is noticeable. The circular depressed scar occupies the middle line at a distance of two and a half inches from the tip of the ensiform cartilage, and four and a half from the umbilicus. Between the scar and the ensiform cartilage and costal margin the abdomen is dull on percussion, the dulness being continuous with that of the liver, the left lobe of which appears to be slightly enlarged, there being a sense of fulness and resistance above and to the left of the scar, but there is neither tenderness on rough pressure nor the slightest indication of fluid, and the limits of this fulness are undefined. Around the area above indicated both chest and abdomen are healthy and resonant. The girth around the body at the lines above indicated (tip of ensiform cartilage and two and a half inches below it), was at the end of forced inspiration thirty-two inches, and at the end of forced expiration thirty inches, being three, and three and a half inches respectively, less than before the first tapping. Although it must be conceded that a cure has been effected in this case, still I do not regard it as a radical cure, meaning thereby, not only the destruction of the parasitic growth, but also the removal of the walls of the cyst and adhesions of the parts separated by it. None of the original cyst wall was evacuated, and the thickening which remains is doubtless due to the presence of the old cyst, the walls of which are still separated by some fluid derived from the same, and thickened by débris of the broken-down hydatid membrane of secondary cysts.

The above history was written for the last published volume of the 'Hospital Reports,' but was postponed for want of time to collect and examine as I have now done in the appended Tables the cases of hydatid of the liver which have been published during the last ten years.

The delay has been fortunate in respect of this case, for towards the close of the year (1877) Wm. C— again applied to me. I had told him in March that I did not regard his cure as complete, and he presented himself at the end of September and requested that I would treat him for radical cure. He said he had been out of health lately, that he had had pain in the epigastrium (probably from dyspepsia) lasting two or three days, that he was losing flesh and felt distension of the left hypochondrium, especially after meals which annoyed him when at work (shoemaking). On standing there was a visible fulness of the left hypochondrium with slight increase of the eversion of the left rib margin. On standing the left hypochondrium presented a fulness; and a soft, dull, obscurely fluctuating tumour passed across the epigastrium, the most prominent part lay in the left hypochondrium where a rounded border was obscurely palpable, the dulness reached to within an inch of the umbilical line, and the pulsation of the aorta was felt on pressing the tumour. The body measurement on a line with the scar of the last puncture was, after forced inspiration only thirty-one and a quarter inches, and after forced respiration only thirty and a quarter, being less than I had ever found it. He was always spare, and there was not at this time any very notable loss of flesh.

Having entered the hospital (No. 1 Arthur Ward) Nov. 2nd, I proceeded to tap him six days afterwards. As he lay on his back the fulness above described disappeared, and the hypochondria declined considerably from the slightly expanded rib margins, so that a mere looker-on failed to perceive any tumour. Fluctuation, however, was sufficiently distinct, and on pushing an exploratory trocar through the old cicatrix a drop of bilious pus appeared. I immediately withdrew it, and thrust in a No. 12 trocar and cannula. Dr. Stone applied a manometer when I withdrew the trocar, and the pressure gradually rose to eleven inches of water. During half an hour ten ounces of ochre-coloured, bilious smelling, grumous fluid, containing the gelatinous débris of hydatid membrane flowed away. After standing, the sp. gr. of the supernatant fluid which looked like thin pus was 1030, the microscope showed laminated membrane, much cholesterin, spherules of fat, and granular matter. About a pint of a similar fluid oozed away during the latter part of the day. The cannula was retained in the wound, a piece of closely fitting india-rubber tubing being inserted so as to project a little beyond the sharp edge of the cannula. From two to four ounces of a wash (composed of forty grains of crystallised carbolic acid, and 100 grains of tincture of iodine in 30 ounces of water), were injected once or twice a day. On the seventh day (after the tapping) there was free suppuration both from the sac and from the edges of the wound, and the cannula being quite free, I introduced a No. 9 elastic catheter into the sac, and removed the cannula by slipping it over the catheter. I then easily passed another catheter, a No. 5, by the side of the other, and fixed both in the wound allowing the ends to incline over to the right side. A constant oozing of inoffensive dirty ochre-coloured discharge was thus maintained until the *fourteenth day,* when pieces of bright jelly-like membrane, often stained by bile, began to obstruct the flow. On removal of the larger catheter a large piece presented itself at the surface and was removed, and a free discharge of thick yellow offensive pus followed. The old catheters were replaced by Nos. 12 and 3, and as the wash was injected by the one it freely flowed out by the other. Much pus was thus washed out, and the fluid at last ran out nearly clear. On the *nineteenth day* there was retention of discharge, the injected fluid did not return, and there was slight pyrexia (temp. 100° to 101·7° Fahr.). On removing the catheters the eyes were found plugged with fragments of cyst membranes, and a large piece presented itself at the wound and was removed. Nos. 12 and 9 catheters were introduced, and the sac was washed out with about twelve ounces of the lotion. Next day on removing the catheters a wineglassful of broken, thick, yellow, and very friable but gelatinous looking membranes came away with explosive violence, and this was followed by great relief. Other fragments still remained, and the discharge from the sac was again obstructed the same evening. Next day I was able to pass Nos. 14 and 10 catheters side by side into the sac, and after injecting a few ounces of the lotion into the cyst and then suddenly withdrawing the catheters, a large quantity of broken membranes was discharged with expulsive force. Attempts were made to suck the membranes through the eye of the No. 14 catheter by attaching an aspirator, and although a vacuum was sustained the membranes were too tough to pass; the evacuation, however, was promoted by injecting a few ounces of fluid, preventing its return, and then suddenly withdrawing both catheters as the patient coughed. This was done with good effect everyday, and on the *twenty-second day* a large piece of thick, bright, gelatinous membrane measuring about five inches by three appeared at the wound, and was removed by the forceps; about half a pint of offensive pus followed. This proved to be the last portion of hydatid membrane, and henceforward there was no obstruction to the flow of fluid through the catheters, the lotion passing out by one as soon as it entered by the other. The sac now soon contracted. This last portion of hydatid membrane, which from its thickness was undoubtedly a portion of the parent cyst, appears to have been slightly adherent to the liver, for the washings immediately after its removal, and on the day following were tinged brownish red. The depth of the cyst at this date was about four inches, and of late the catheters had taken a direction a little upwards and considerably over to the left hypochondrium, so that the external part of the passage was very oblique.

Excepting a slight rise of temperature as below,

2nd day .	p.m., 100·0°.
3rd ,, . .	a.m., 100·8°; p.m., 102·2°.
4th ,, . .	p.m., 100·8°.
6th ,, . .	,, 101·2°.
7th ,, . .	,, 101·0°.
8th ,, . .	a.m., 100·0°.
12th ,, . .	p.m., 100·0°.
13th ,, . .	,, 100·8°.
19th ,, . .	noon, 101·7°; p.m., 100°.
21st ,, . .	p.m., 100·4°.
22nd ,, . .	,, 100·4°,

there was no disturbance of the general health neither pain nor discomfort. The rise of temperature was coincident with and dependant upon retention of discharge from blocking of the eyes of the catheters by fragments of the membranes. An occasional dose of castor oil was required to maintain due activity of the bowels.

On the dawn of the twenty-third day he was awoke by a sharp pain to the outside of the right nipple on drawing breath. This subsided in the course of the day, and left him entirely before the lapse of forty-eight hours. During the next week only a teaspoonful or two of pus was discharged from the cyst, the catheters being perfectly free. During the next fortnight there was a change, the fluid (about 2 oz. daily) became watery and stained brown with bile, the catheters, inserted about four inches were pushed more over to the left, the hepatic region became uneasy, rather tender and somewhat restricted in respiratory movement. The morning temperature was never under 99°, and it usually rose to 100° and sometimes to 101° in the evening. The tongue was still clean but occasionally dryish at the tip, the patient was listless, and the voice weak.

Between the thirty-eighth and fifty-eighth days a large collection of pus formed in the right hypochondrium, which became tense, hard, and completely fixed. The liver was pushed down but evidently rolled forward on its horizontal axis, for the lower edge could not be felt and pain was experienced over the commencement of the ascending colon, due I believe to its compression by the edge of the liver and retention of flatus. Still there was no obstruction to the action of an aperient. The right half of the diaphragm was pushed upwards and immovable, as were the ribs of the right side also, the lower lobe of the right lung was compressed and irritated, and there was at last a harrassing cough and a little bronchial sputum, and then a little fine bronchial crepitation could be heard at the base of the lung. From the mammary line downwards to the distended colon the right side was dull. The pyrexia meanwhile continued with alternate chills by day, and heats with moderate perspiration by night. There was, however, no shivering at any time; the temperature on the thirty-eighth evening rose to its maximum 103·4°, next morning it was 98·8°, and on the evening 102·4°, but it never afterwards exceeded 101·8°. The pulse was almost always 108. The always clean tongue became almost constantly dry or dryish anteriorly. The respirations never exceeded 20. The movement of the left ribs amply compensated for the restraint on the right side, the left hypochondrium was flaccid and resonant.

I was of course anxious to ascertain the relation of the new collection of fluid to the surface, but for some time, the only fluctuation perceptible on most careful examination was immediately in the neighbourhood (to the right of and above) of the wound occupied by the catheters. They (Nos. 5 and 8) still passed a distance of four inches but took so oblique a direction towards the left that for most of the distance they could be plainly felt through the thin abdominal wall. It was clear that they were pushed away to the left by a second cyst, and yet it was remarkable that this which produced so much distension on the right side, should not rupture into the primary sac and discharge itself by the opening which I had purposely kept large for this expected result. So I was induced to wait from day to day, but as there was no discharge from the wound, I removed the catheter on the forty-third day and introduced a long No. 10 trocar and cannula, and pushed it backwards and upwards at an angle of 45° to the surface; I ultimately passed it to the depth of four and a half inches from the skin, and as this was the only situation where there was any indication of fluctuation I expected to enter the second cyst.

The instrument passed as easily as if it was going through soft lard, but not a drop of fluid of any kind escaped. Before withdrawing the cannula I inserted a No. 8 elastic catheter, to the full depth of four and a half inches and tied it in the wound. A large linseed poultice was kept applied over the epigastric and right hypochondriac regions, and as the catheter now occupied the centre of what was apparently a fluctuant region, I hoped that soon the second cyst would form a communication with the old opening. This never occurred. A free, slimy, gamboge coloured discharge appeared on the forty-fifth day and the following week, such as would result from the introduction and retention of a catheter within the healthy liver substance. A second catheter was introduced by the side of the first, and these retained their central position until after the removal of the contents of the second cyst, when they took an oblique direction towards the *right* hypochondrium. As the old cyst was emptied of its contents, only a teaspoonful or two of pus was discharged from the catheters and margin of the wound, after the first week. The catheter was gradually pushed out as the sinus healed, and this was finally completed on the 120th day.

The introduction of the catheter into the liver by way of the old sinus and the provocation of bilious discharge, gave slight relief; but the swelling of the right hypochondrium steadily increased, a large area of hollow resonance formed above, and I feared rupture into the lung. The patient raised himself in bed with difficulty and the face became pinched and anxious. I tried to find the proper place for puncture of the second cyst, and on the fifty-eighth day discovered clear fluctuation between the ninth and tenth ribs of the right side. There on a vertical line, one and a quarter inch to the right of the nipple, and intersected by a horizontal line drawn half an inch below the old opening, which was two inches and three quarters from the tip of the ensiform cartilage, and three inches and a quarter from the umbilicus, I inserted an exploratory trocar and cannula, and as pus spurted freely, I then and before removing the exploratory cannula introduced through the point itself a No. 12 trocar. The pressure was very great, and in the course of a few minutes four pints of intensely fœtid, dirty straw-coloured fluid, looking like thin pus, flowed away. It contained the débris of hydatid cysts in the form of minute jelly-like fragments. When the flow ceased I introduced an elastic catheter, which passed to the depth of five inches, withdrew the cannula over it, and then washed out the cyst by injecting carbolic acid and water (40 grains to a pint) until this flowed away nearly clear. About 30 ounces were so used. The hard swollen hypochondrium became quite soft and there was great and immediate relief. The discharge contained no pus corpuscles but a large quantity of fat in molecules and spherules nearly the size of pus corpuscles. The jelly-like hydatid membrane was so much disintegrated as to show no lamination. There was a large quantity of cholesterin and of another fatty matter (tyrosin ?) beautifully crystallised in mossy tufts of elegantly curved needles. Small masses of yellow amorphous bile pigment and of brilliant scarlet hæmin in bold acute rhombs speckled the fluid and formed a considerable deposit.

About a pint more of the same kind of exquisitely offensive fluid was discharged during the night. Next day the pyrexia and almost all his discomfort were gone, the patient looked bright, the abdomen was retracted, the right hypochondrium quite free; there was tympanitic resonance over the margin of the ribs and two fingers' breadth above, and the catheter shared in the respiratory movements.

It was instructive to observe the relative position of the catheters. At this time Nos. 7 and 5 lay at the depth of four inches in the old wound, taking a direction backwards and slightly upwards; at right angles and nearly in a line with the end of this, another catheter lay at a distance of five inches from the surface. The girth of the body at a line drawn between the two punctures was now not more than thirty inches, the ends of the catheters therefore could hardly be more than an inch apart, and there had been enormous distension, and yet I am satisfied that the second cyst would never have broken into the first, but that its contents would very soon have made their way through the diaphragm into the lung, had not the artificial opening been made.

About a pint more of fœtid fluid was discharged during the night. In the morning the pulse and temperature were normal, the patient was bright and comfortable; the right hypochondrium was quite free, and shared in the respiratory movements, which also affected the catheter in the side.

The patient made a steady progress, retarded only by occasional impediments to a free discharge of the fluid accumulations in the cyst, from the presence of broken down hydatid membrane, and ultimately by the dense fibrous lining of the sac.

The evening temperature rose above 100° on those occasions (about six in all), but only once attained 102°. Attendant upon the partial retention of the discharge and corresponding distension of the sac, the movements of the right side of the diaphragm were diminished, the base of the right lung was a little compressed and irritated (a little fine bronchial crepitation, occasional cough, and expectoration of a little pellet of frothy mucus). The appetite continued good, and the bowels now acted without aperients.

The following is a summary of the treatment employed, and of the chief events which attended the cure :

For the first week the discharge was irregular, some days four or five ounces of yellowish offensive pus, and some days only a slight oozing between the catheter and the wound. The eye of the catheter was in fact constantly obstructed by cyst débris. By means of an aspirator attached to the catheter in the wound by india-rubber tubing, a few ounces of gamboge-coloured pus were occasionally obtained, but the suction often failed, and always the rush of fluid was sooner or later suddenly arrested by plugging of the catheter. In order to remove the single catheter with safety, so as to be able to clear away the obstructions, and to dilate the wound to facilitate their discharge, I introduced other catheters as soon as possible. On the sixth day I was able to pass No. 2 elastic catheter by the side of the No. 9 contained in the wound ; and next day I introduced a second (No. 3), so as to have three catheters in the sac. The patient lay continuously on his back, and the ends of the catheters hung over a pewter vessel. I was now able to facilitate the discharge by repeatedly withdrawing and cleansing the catheters, and as often as the fluid would return, injecting the iodine and carbolic acid water (see p. 313). Even when this did not happen, and as often as the injected fluid would ultimately return wholly or in great part, I ventured to distend the sac by the injection of a few ounces of the wash, and then, on withdrawing the two larger catheters, I was occasionally rewarded by the appearance at the orifice of the wound of a piece of toughish membrane, which I could remove by the forceps. By the ninth day I had succeeded in getting No. 12, and two No. 4 catheters into the sac ; and two days afterwards, after injecting four ounces of wash, I suddenly withdrew them all at once while the patient gave a few strong coughs, and repeated the process several times ; by this means rather thickish and brittle fragments of hydatid membrane about the size of a shilling, and whole cysts, the size of peas and raisins, with a large quantity of thick but still offensive pus were discharged. Afterwards the injection passed by one catheter flowed away in an equal stream by the other, and the sac appeared emptied and clean. For the next few days the discharge (about one pint daily) was merely diluted bile of a greenish-brown colour, and fresh bilious odour, sp. gr. 1014; and on the addition of acetic acid, deposited a large quantity of mucus.

For the two or three weeks following, the discharge was reduced to about an ounce and a half of thick slimy pus, almost as solid as nasal mucus, and about the thirty-sixth day there was evidence of considerable obstruction, the diaphragm being again restrained and the lung encroached upon. There was "cutting" pain just below the right nipple, and the temperature rose to 102°. After wearing a linseed poultice, which encouraged a little more oozing by the sides of the catheters Nos. 14 and 6, and getting away fragments of membrane, the pain and pyrexia soon subsided, and the patient felt quite well again a week after. On the forty-fourth day from the tapping of the second cyst, after repeated removal and clearing of the catheters, I was gratified to find a piece of membrane present itself in the passage. I removed it easily with the fingers; it proved to be the lining of the original cyst much thickened by inflammation. It was ragged, about the size of the gall-bladder, and its wall was as thick as that of this viscus. At this time it was slightly adherent to the liver, for its removal was followed by a slight oozing of chocolate-coloured blood—the first which had appeared at any time during the treatment of these two cysts.

Now the way was clear, and a little thick and still somewhat offensive pus followed. As yet there had been but little contraction of the sac, for the catheters still passed four inches and a half, but for some time the direction, which was at first transverse from side to side, became a little backwards and upwards.

A little inoffensive muco-pus was daily discharged. I soon removed the small catheter, but kept the larger inserted for an unnecessarily long time, as the patient was not inconvenienced by it either in bed or walking about. The sinus gradually healed up and pushed the catheter out.

The patient left his bed about the fiftieth day after the opening of the second cyst. I kept him in the hospital until the 156th day, *i. e.* five months from the time of his admission. He gained two stone in weight during the latter part of his sojourn, and, in fact, became fatter than he had ever been. He has returned to work, and now enjoys better health than he has known for many years. He has lost excess of fat. A cicatricial depression, a little smaller than that of the navel, occupies each of the sites of the previous openings into the two cysts. The abdominal wall immediately surrounding the epigastric one is a little prominent, but becoming less so. The abdominal and thoracic viscera are normal, and present no traces of enlargement.

The liver dulness commences about three fingers breadth below the right nipple. The measurements are as follows:—From tip of ensiform cartilage to the umbilicus 6 inches, from the former point to the epigastric scar in the middle line 2½ inches; round the body, on a level with the tip of the ensiform cartilage, 32 inches, each side measuring 16 inches; and on a line with the epigastric scar 29½ inches.

Compared with the measurements six years ago, when his weight was the same, there is a diminution of about four inches in both situations; but compared with the measurements six months ago, the diminution amounts to a little less than two inches.

The following case came under my care while doing duty for Dr. Peacock, and I am indebted to him for the means of completing the history.

Case 3. *Large hydatid cyst of the liver; puncture; refilling; second puncture after an interval of six months; rupture of the cicatrised opening three weeks afterwards, and persistent purulent discharge; subsequent extension of the disease through the diaphragm; evacuation by the right lung; recovery.*

Daniel S—, æt. 15, residing at Grimsby, states that his parents are living and healthy, one brother and four sisters living and well, one brother died of convulsions and one sister died young. That he has been healthy up to three years ago, when his abdomen began to swell without any apparent cause, the swelling being greatest in the hepatic region, where he also had a dull pain. He soon had to lay up on account of the swelling of abdomen becoming greater. The swelling increased till he got so large he could not, as he states, lie down, and about eighteen months ago he was tapped below the umbilicus and more than two gallons of a yellowish-green fluid escaped.

After this he was better, the wound healed, and he was able to go about again, but six months after, the swelling, the right hypochondrium especially, reappeared, and paracentesis near the site of the previous puncture was required; but this time only about one and a half gallons of fluid came away. This fluid resembled that from first tapping, but was thicker, containing pellets of some kind. The doctor who tapped him says when he first came to him he was suffering from chronic hepatitis, which resulted in abscess, and that it burst into the abdominal cavity, which led to his tapping him twice and drawing away fluid as stated. He also stated that no sign of cysts had ever been seen, nor had the abscess any connection with the lung when under his treatment.

After the second tapping he was better and able to go out, but three weeks after the operation the cicatrix gave way and a discharge of fluid yellowish pus commenced which continued up to the time, August 12th, 1873, when he was admitted into St. Thomas's. About nine months since he began to cough and expectorate yellowish sputum similar to the discharge from the wound. Does not complain of pain in chest, but states he has a dull pain in hepatic region, has had profuse night sweats, and was considerably emaciated at first, but has gained flesh of late. Urine 1023, acid.

Aug. 18th.—He was somewhat emaciated, and had a sallow, pallid, unhealthy appearance, with glassy but pallid conjunctivæ. The chest was flattened under the clavicles on both sides, but expanded below, more on right side. Dulness on percussion commenced about the level of nipple on right side, and became entire about a finger's breadth below, at the level of fifth rib. Hepatic dulness scarcely extended below the edges of the false ribs. The respiratory sounds could be heard below the commencement of hepatic dulness, and over a limited space there was a distinct subcrepitant friction sound at the end of a forced inspiration. The dulness on percussion posteriorly commenced high up, and became entire about the middle of dorsal-region; above this point the voice had a somewhat ægophonic twang, and below, all sounds were abolished. There was a little papilla near the umbilicus, through which pus was discharged to the extent of half an ounce every day, offensive, and a little bloody. He had a violent paroxysmal cough, and brought up pus in separate masses. He could lie comfortably on the right side, but when he lay on the left side he began to cough. He had at times, when coughing, a sense of something rising in the throat.

The expectoration at this time amounted to about two ounces a day, and had the appearance of that voided during tubercular ulceration of the lung. I had no doubt, however, that the lung mischief was due to extension of the hydatid disease, and although the diaphragm was already implicated, and probably perforated, still I thought it would be well to promote the evacuation of the cyst by the old sinus. With this view a drainage-tube was inserted through the old sinus and brought out through the skin two inches above and to the right of it. This was of no avail, and about nine days afterwards a pint of thick, slimy, ochre-coloured fluid, containing pellets of mucus minute fragments of gamboge-coloured, gelatinous membrane, proved to be hydatid by its finely laminated texture when magnified, was expectorated during a fit of coughing.

For the following week about a pint a day of similar matter was expectorated. The discharge then gradually diminished, and the patient, being greatly relieved, began to recover appetite and regain flesh. The lung dulness receded at first rapidly, and afterwards more slowly. The patient soon left his bed. He was discharged apparently in perfect health. The respiratory sounds in the base of the right lung were feeble, but no trace of tumour was perceptible.

The subject of the following notes was for some time under Dr. Weber's care in the Dalston Hospital, and I am indebted to his kindness for opportunities of examining the patient.

Case 4. *Hydatid of the liver, simple puncture; continued growth of the tumour; after an interval of several years, reappearance of the symptoms, and of others indicating pressure of the inferior vena cava, or at least of a renal vein, and of the bile duct.*

Isidor W—, between 30 and 40 years of age, was tapped January, 1857, by Dr. Langenbeck of Berlin, for the relief of a hydatid tumour of the liver which encroached upon the right lung and caused dyspnœa. A large quantity of clear salt fluid containing clear round vesicles about the size of the end of the thumb was removed by simple puncture.

In February, 1869, he came under Dr. Weber's care for severe jaundice and great lassitude. A fortnight later œdema of the legs supervened and there was fluctuation in the abdomen, the urine was dark coloured and contained albumen.

In August of the same year I examined him and found the lower ribs of the left side everted, while those of the right side were bulged so as to form a general prominence of the lower thoracic, and hypochondriac regions of the right side. The lower edge of the liver was on a line with the navel, and the hypochondrium and epigastrium, were occupied by a dull and distinctly fluctuant tumour. A trace of the former puncture was visible over the most prominent part of the swelling on the right side. The lower part of the abdomen was flaccid and resonant.

The skin was stained by an old, icteric tinge, and he was subject to occasional attacks of fresh icterus, sometimes attended by sickness. The urine was still smoky and contained a moderate amount of albumin, and great numbers of long fine hyaline casts of the uriniferous tubules entangling many oil spherules and small fatty corpuscles. The general health was fair.

I last saw him in June, 1870. His health had improved, but the tumour was unchanged, and he was liable to slight attacks of jaundice. The renal congestion was less marked, and all trace of œdema of the legs had been absent for several months.

CASE 5. *Dry hydatid tumour of the liver discovered after death probably from suppression of urine.*

An adult male was admitted into the London Fever Hospital, under my care, December, 1866, in a state of unconsciousness and emaciation. He died in the course of twenty-four hours apparently from inanition. The abdomen was retracted, but there was enough colourless serum in the peritoneum to fill up the interstices formed by the coils of intestine. The kidneys were large, congested and minutely mottled with fatty deposit; the bladder was empty and contracted. The liver weighed 5 pounds 5½ ounces, and was in a state of advanced cirrhosis. The upper and outer (right) portion of the right lobe was occupied by a hydatid tumour, the size of a small cocoa nut; the cyst came to the surface, but did not project from it, and was firmly adherent by bands of old adhesion to the ribs of the right side; it was of leathery consistence $\frac{1}{12}$ of an inch thick; was smooth internally and covered with a thin layer of steatomatous deposit; free from fluid, it was stuffed tightly with secondary cysts varying in size from a pea to a walnut. These secondary cysts contained fluid and numerous echinococci, and colonies of from ten to twenty inclosed microscopical tertiary cysts.

Although these larvæ were living and robust, it was evident that the advancing induration of the liver had restricted the development of the tumour.

CASE 6.—*Large hydatid cyst af the liver; accidental rupture and intense peritonitis; recovery; extension of the disease in the peritoneal cavity; enormous distension; abdomen punctured by the trocar thrice at intervals; continued swelling of the abdomen; rupture into intestinal canal, and discharge of hydatids and fluids by bowel; recovery; extension of the original cyst into the thoracic cavity; communication with the lung, and death.*

M—, æt. 28, had a large hydatid cyst of the liver for several years, but it gave him no inconvenience and he led an active life as master of a pack of sporting dogs. In an encounter with one of these he fell upon his belly and immediately experienced intense pain, and this was followed by the most intense peritonitis and his life was in great danger. He recovered, however, excepting that the abdomen was much enlarged, and resumed the occupation of the chase a month or six weeks after his accident, but found himself unequal to much exertion. The belly continued to increase in size, and was the seat of dull pain. Five months later the abdomen was tense and fluctuant from the chest to the groins, and the respiration was embarrassed. Three weeks afterwards he was comatose, the pulse was failing, and the urine suppressed; the girth of the body at the seat of the navel was forty-five inches. A trocar was introduced, and the patient was relieved of about ten pints of turbid ochre-coloured fluid full of minute hydatid vesicles the size of hemp seeds. He revived and all went well for some days, but a fortnight afterwards the abdomen had regained nearly its maximum distension. He was relieved by a second tapping, and the issue of about eight pints of fluid and cysts like the former. This was followed by recovery so far as to allow of his leaving bed and going into the garden, but a third tapping was urgently called for eighteen days after the second. On this occasion seven and a half pints of fluid were liberated with difficulty, owing to the obstruction of the cannula by cysts. This last operation was followed by a constant pain in the abdomen; the punctures suppurated; there was shivering and anorexia, and after an interval of a fortnight he was taken in the night with an urgent desire to evacute the bowels. Several stools followed in rapid succession, and altogether about fourteen pints of fluid like that obtained by the punctures passed, only the débris of cyst membranes were more voluminous, and one of them was larger than the hand.

The abdominal swelling disappeared. For a time hydatid fluid continued to pass by the bowel. The patient recovered, and just a year after the rupture of the cyst by the fall he regarded himself as completely cured although walking caused fatigue, a full meal pain, and the stools continued watery. However, these symptoms nearly disappeared and he regained his strength and an embonpoint which he never had before. Of a cheerful and reckless disposition, he preferred a short and happy life to one of restraint, which, doubtless, would have done little to prolong it. For a year all went on well, and then the old troubles returned; loss of flesh, dull pain, shivering, fever, diarrhœa, swelling of the hepatic region, a little icterus, and redness of the legs. Nature made a final effort to rid herself of the parasite. An abscess (an extension doubtless of the original cyst) opened into the lung, and after two months of suffering the patient died.

No post-mortem examination could be obtained, and none, indeed, was needed, the patient's body having been completely riddled by art and nature in efforts to vanquish an enemy which, at the instant of death and after spoiling the rest of the viscera, held undivided sway where he had fixed his seat, namely, in the liver.[1]

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[1] Dr. Bertin, 'l'Union Médicale,' 3ème séries, vol. vi.

TABLE I.—*Cases in which the cyst was punctured once or oftener at variable intervals, the opening being allowed to heal directly after each operation. In two (Nos. 51 and 52) the cyst was injected with iodine.*

No.	Sex.	Age.	Situation of the tumour and treatment.	Nature and quantity of the fluid withdrawn.	Progress.	Result.	Reference to Author.
1	F	36	Tense, elastic, fluctuant tumour, occupying the left hypochondrium and part of the epigastrium. Puncture with a fine trocar and removal of.	27 fluid ounces of fluid, at first clear, afterwards pinkish and turbid. It contained numerous echinococci.	No disturbance followed the puncture. On the 13th day, the prominence of the hypochondrium continued, there was no fluctuation, and the lower line of dulness was 1 inch higher. Five months afterwards she reported, "I have sometimes felt a little fulness in my side, and a slight pain in my back." A year afterwards it appeared from her report that the tumour was enlarging, and about 2½ years after the tapping she again came under treatment; the tumour was found to be much larger than at first, and caused much distress; a second tapping was determined on, but before it was effected an opening formed into the alimentary canal and the fluid contents of the tumour were discharged by the mouth.	Death from rupture into the intestinal canal.	Stephen H. Ward, M.D. Lancet, vol. i, 1870, p. 476.
2	M	16	Tumour of right hypochondrium and epigastrium, the size of a fœtal head, apparently continuous with the liver, moving with respiration, but without "hydatid fremitus." Aspiration one inch below ensiform cartilage three quarters of an inch to the right of middle line.	22 ounces of hydatid fluid containing echinococci.	Immediate relief. The next day bilious vomiting and very slight febrile disturbance. The progress was then satisfactory; on the 6th day the patient felt quite well, and on the 46th day the lad said he was well, and there was neither pain, tenderness, nor enlargement in the situation of the former tumour.	Recovery.	J. B. Bradbury, M.D. Brit. Med. Journal, 18th Nov., 1876, p. 647.

No.	Sex	Age	Situation of the tumour and treatment	Nature and quantity of the fluid withdrawn	Progress	Result	Reference to Author
3	M	36	Tumour of the right lobe of the liver, increasing the semicircumference of the body on a level with the ensiform cartilage one inch; percussion dulness higher in front, and descending with deep inspiration; intercostal spaces obliterated, and a distinct "hydatid fremitus." Aspiration of the tumour and repetition of the operation forty-eight days afterwards.	2 pints of clear hydatid fluid by the first operation, and 1½ pints of fluid like pus by the second.	There was at the time of the operation, and had been for some months previously, considerable pleurisy in the vicinity of the tumour. All febrile disturbance disappeared after the first operation, and the patient was well and able to dance on the 21st day. A fortnight afterwards pain and the signs of pleurisy existed in the situation of the tumour, which continued, and at the time of the second operation the tumour was undiminished. Some pain, sickness, and diarrhœa, followed the aspiration, but six days afterwards his pulse and temperature were normal, and no increased liver dulness or abnormality could be detected then or 39 days later on, and a fortnight afterwards the patient reported himself as going on satisfactorily.	Relief.	I. B. Bradbury, M.D. Brit. Med. Journal, Nov., 1876, p. 644.
4	M	28	Hydatid tumour of the liver; rupture through the lung; increase of the tumour. It was tapped thirteen times in various places in the lower intercostal spaces of both sides, and in the median line over the epigastrium.	179½ ounces of fluid at first clear or bloody, and at last of a thicker consistence, were obtained.	The progress of the case is not mentioned. The chief interest in connection with it is that the patient should have escaped the dangers of so many tappings, some which "evidently missed the cyst" and drew only "bloody fluid," or were followed with no result. The pulmonary disease was greatly relieved. The case is little more than a record of these tappings, and concludes with the following:—"The presence of a morbid growth can be detected on the right side under the border of the liver.	Ditto.	John Blair, L.R.C.S. Ed. Australian Med. Journal, vol. 16, p. 329.
5	F	18	A tense, elastic tumour of the liver, occupying both hypochondriac and the epigastric regions, and extending to the right iliac region. Puncture with a fine trocar and cannula, and aspiration (Mary M'D.).	38 ounces of clear hydatid fluid, sp. gr. 1007, and containing echinococci, were drawn off.	On the 2nd day there was pain at the site of puncture, and high fever, temp. 104°, pulse 140. This gradually subsided, and about the 5th day all danger appeared to be over. On the 12th day the pyrexia returned, and there was vomiting. On the 13th day severe pain 2 inches above the puncture; symptoms of peritonitis came on, and she sank and died on the 27th day. There was recent peritonitis, and 25 ounces of yellow puriform fluid in the peritoneum. The viscera were adherent	Death from peritonitis and retention of contents of cyst.	Dr. R. Scott Orr. Glasgow Med. Journal, vol. 8, p. 16, 1876.

					by recent lymph, which was firmest near the seat of puncture. The right half of the liver was occupied by a large loosely filled cyst, containing 3 pints of nearly pure pus and hydatids. The left lobe of the liver contained a second cyst, separated from the former by a dense partition; it contained 32½ ounces of greenish-brown turbid fluid and hydatid cysts. The lungs were healthy.		
6	M	34	An elastic tumour in the hepatic region. Puncture with a trocar and cannula, and repetition of the operation after a time not specified.	60 ounces of clear hydatid fluid containing echinococci by the first operation, 40 oz. (nature not mentioned) by the second.	The first tapping was followed by localised pleurisy, the second by localised peritonitis. The man afterwards "seemed to do well, but the liver dulness in front is still about 12 inches broad, though behind it is much less."	Slight relief.	Dr. Fenwick. Brit. Med. Journal, 1876, vol. ii, p. 113.
7	F	32	Tumour of the right side of chest below the fourth rib, and of the right hypochondrium to within one and a half inch of the umbilicus. Puncture with a hollow needle and aspiration (C. D.)	16 ounces of clear hydatid fluid.	The evening after the operation she had vomiting, headache, and pain over the seat of the the puncture; 13 days afterwards there was a dull aching pain over the seat of the tumour and in the back. The patient left the hospital on the 15th day, at which time the dulness of the right side commenced at the 4th rib, and extended downwards to within half an inch of the line of dulness observed before the operation.	Relief.	Dr. Paget and Dr. Bradbury. Brit. Med. Journal, 1874, vol. ii, p. 589.
8	F	23	Hydatid tumour of right hypochondrium, extending to one third of an inch above the umbilicus. Tapping with a hollow needle and aspiration (S. U.)	16 ounces of clear fluid.	There was considerable pain in the right back two months before the operation, and later on faintness and occasional vomiting. For 4 or 5 days after the operation there was some general and local disturbance, with pain and tenderness on pressure over the abdomen, especially in the situation of the tumour, and occasional vomiting. On the 7th day the general condition was much improved. A fortnight later there was a return of the pyrexia, occasional vomiting, and an increase of the pain over the upper part of the abdomen, and on the 31st day there was much pain, nausea, evening temp. 101·6°, and pulse of 132. On the 50th day "she had very little pain in the right side, and the swelling had entirely disappeared; she could walk comfortably, but lifting a heavy weight induced the pain." She was discharged cured this day. On the 97th day she again applied on account of pain in the right side. This left her after a few weeks, and "when last heard of she was perfectly well."	Relief.	Dr. J. B. Bradbury. Brit. Med. Journal, 1874, vol. ii, p. 558.

No.	Sex.	Age.	Situation of the tumour and treatment.	Nature and quantity of the fluid withdrawn.	Progress.	Result.	Reference to Author.
9	F	20	A well-defined globular elastic tumour, about the size of an orange, apparent in the right hypochondrium. Introduction of a fine cannula and aspiration (Charlotte C.).	10 ounces of transparent, almost colourless fluid, which became bloody towards the end. No echinococci were observed.	No bad consequence followed, and the pain and uneasiness were much relieved. Her health improved, the prominence of the hypochondrium disappeared, but some remains of the tumour might be felt by manipulation. She was discharged at the end of a fortnight. After an interval of several weeks she continued quite well, and there was no return of the tumour.	Recovery.	J. D. Heaton, M.D. Brit. Med. Journal, 1874, vol. ii, p. 557.
10	M	14	Smooth, globular, elastic, fluctuant tumour of the right hypochondrium, distending the lower ribs of the right side. Girth of body five inches above the umbilicus twenty-nine inches, which in 22 days increased to thirty-one and a half inches. Introduction of a fine trocar and canula (John H.)	23 ounces of clear, colourless hydatid fluid, sp. gr. 1010, but without trace of echinococci.	No untoward symptom followed the operation, and he was made an out-patient 15 days after. About two months afterwards the boy was in good health, and no tumour was discoverable in the hepatic region. The liver dulness was 3½ inches in the middle line (2 inches less than before the operation, and 3 inches on the nipple line (3 inches less) The measurement of the abdomen at the line above mentioned was 26½ inches (5 inches less).	Ditto.	G. H. Phillipson, M.D. Brit. Med. Journal, 1874, vol. ii, p. 557.
11	M	20	A tense, fluctuant tumour of the right hypochondriac and epigastric regions, extending to the umbilicus and the left hypochondrium. Puncture with the finest exploratory cannula and aspiration. After twenty-one days a second operation similar to the first (Robert S.)	By the first operation 46 fluid ounces of perfectly colourless, transparent fluid, sp. gr. 1007·8, containing hooklets By the second 35 ounces, yellowish-brown, turbid, sp. gr. 1013, containing bile.	A moderate degree of pain was experienced for three days after the first operation, but there was no pyrexia. He left bed at the end of a week. The fluid reaccumulated. During the second operation the evacuation of the cyst was prevented by obstruction of the canula. The patient was kept under observation for a considerable time, and when last seen the swelling in the hepatic region had very much diminished.	Relief.	Dr. R. Scott Orr. Glasgow Med. Journal, vol. viii, p. 13, 1876.

12	M	61	Large, globular, tensely fluctuating, painless tumour of right hypochondriac, epigastric, and right lumbar regions. Subsequently pain and friction sound over the sac. Puncture with a fine trocar at the outer edge of the right rectus (John M.)	70 ounces of turbid, purulent fluid, sp. gr. 1016, flowed from the cannula.	Febrile disturbance followed the operation and continued for about a week; the girth round the abdomen was reduced 2 inches, and the liver dulness was apparently normal on the 12th day, and the patient left the hospital "in perfect health."	Ditto.	Mr. W. B. Whitmore. Lancet, vol. i, 1873 p. 11. Clin. Soc. Trans v o i p. 29.
13	M	29	Fluctuating swelling of the right hypochondrium. Puncture with a fine trocar and cannula.	16 ounces of hydatid fluid, containing hooklets.	With the exception of the occurrence of some pain in the side and slight febrile disturbance on the 4th day, which symptoms speedily subsided, the recovery was uninterrupted, and he was discharged cured on the 20th day.	Ditto.	Mr. T. Sympson Brit. Med. Journal, 1870, vol. i, p. 438.
14	M	24	Smooth, elastic, fluctuant tumour of the right hypochondrium, extending towards umbilicus and down to the iliac fossa. Puncture with a very fine trocar (C. H.).	53 ounces of almost clear fluid, sp. gr. 1005, containing echinococci.	With the exception of a slight febrile reaction lasting about forty hours the patient did well, and at the time of his discharge it was very doubtful whether there were sufficient positive signs of the tumour refilling.	Relief,	Dr. Southey. Brit. Med. Journal, 1870, vol. ii, p. 138.
15	F	25	Vibratile tumour of epigastric and hypochondriac regions, reaching to within two inches of right iliac crest and four inches below left costal cartilages. Girth at widest circumference thirty-two inches. Puncture with a Thompson's trocar, through linea alba, slightly beneath ensiform cartilage. Five days afterwards repetition of the operation one inch to left of linea alba. On the nineteenth day tapped a third time between and below the previous punctures (Emma R.).	"Less than half a pint of light yellow, slightly turbid fluid, sp. gr. 1009, containing hooklets." No fluid escaped by the second puncture, the cannula having been plugged by two minute cysts. About 4 ounces or more of fluid, sp. gr. 1009, containing fragments of membrane and a few bits of stained, shrunken hydatids, and free from pus.	The tumour had existed several years. Three years before treatment she had miscarried. Jaundice appeared four months before admission, when it was considerable. She was relieved by the first operation, and next day the jaundice was less. The second was followed by a good deal of diffuse pain over the abdomen, but five days afterwards she was feeling very well, the jaundice was considerably less, and the girth was 1 inch less (31 inches). Some pain followed the third operation, and the girth was reduced another inch. She was discharged at her own request on the 28th day with the view of readmission. At this time she had some jaundice, and the girth had increased to 31 inches.	Ditto. but subsequent increase of the tumour.	Dr. Duckworth Brit. Med. Journal, 1871, vol. ii, p. 179.

No.	Sex.	Age.	Situation of the tumour and treatment.	Nature and quantity of the fluid withdrawn	Progress.	Result.	Reference to Author.
16	F	25	A bilobed elastic tumour of the epigastrium, some bulging of the lower right ribs. Hepatic dulness rose to level of third right rib and to the heart. Puncture two inches and a quarter below the ensiform cartilage and a little to its right. About four months afterwards puncture a second time (Mary A. J.).	33 ounces of a fluid, in tint like pale urine, proved by nitric acid to be due to bile-pigment, sp. gr. 1014, with a trace of albumin, pus (?), and disintegrating echinococci. By the second tapping 72 ounces, rather turbid, bilious, and of the colour of porter.	There was slight icterus on admission. No tumour could be felt after the operation. A severe attack of jaundice with great pain in the region of the liver complicated the progress. On the 3rd day the epigastrium was again the seat of a fluctuant tumour as large as before the operation. She was discharged about a month afterwards; then the epigastric tumour had diminished somewhat in prominence and tension, yet the area of hepatic dulness was quite as great as before the operation. The patient was subsequently readmitted for a second operation. About two months afterwards it is stated, "the patient has progressed so far favourably."	Relief.	Dr. Ransom, Brit. Med. Journal, 1872, vol. ii. p. [illegible]
17	F	20	Globular, elastic tumour of epigastric and right and part of left hypochondriac regions. Puncture with a fine trocar and cannula (Emma B.).	1½ ounces, limpid, sp. gr. 1009, containing echinococci and a decided trace of albumin.	Pain and sickness immediately followed the operation; the following day, general urticaria; on the 4th day, condition normal; on the 7th, a relapse, and increase of temperature and pulse, and acute lancinating pains all over the body. On the 31st day, when the patient left the hospital, the tumour was smaller, and a diminution was found at each succeeding examination.	Ditto.	Dr. Ransom, loc. cit.
18	F	21	An elastic tumour in the epigastrium, with bulging of the lower portion of the chest wall, and liver dulness ten inches in the vertical direction, commencing at the fourth right costal cartilage.	13½ ounces, clear, non-albuminous, sp. gr. 1007. No trace of echinococci was found.	At the conclusion of operation, and for some days after, the patient was very sick and faint; there was also a rise of temp. and pulse, and at times severe abdominal pains. The day after the operation general urticaria was present; on the 5th day the condition was almost normal. Three weeks after the operation the patient left the hospital with a "materially diminished hepatic dulness." Nevertheless there was bulging under the right mammary region, and	Ditto.	Dr. Ransom, loc. cit.

			Puncture with a fine trocar and cannula (Annie W.).		the lower edge of the liver extended to midway between the conjoined cartilages and the umbilicus. About eight months after the operation the portion of the liver to be felt below the ribs was decidedly less than on the previous examination, the tumour was distinguishable but small, and the bulging of the right thorax remained.		
19	M	27	Obscurely fluctuant tumour of the lower half of the right thorax, the right hypochondrium, and part of the axillary region. Puncture with a fine trocar and cannula. Vertical measure of hepatic dulness in the right mammary line nine inches and a half (S. R.).	28 fluid ounces of transparent, watery fluid, containing numerous echinococci and free hooklets.	The operation was followed by rigors, abdominal tenderness, and tympanitis. Temp. 100°, and pulse 104. But these symptoms soon declined, and on the 4th day the vertical dulness had decreased 3 inches, and the semi-circumference of the body ½ an inch. A month later the liver dulness extended an inch lower. Diminution, however, to this extent occurred during the next month, and about six months after the operation there was a further decrease of an inch in the vertical dulness.	Ditto.	Dr. Duffin. Clin.Soc.Trans vol. vi, p. 23. Lancet, 1869, vol. i, p. 158.
20	M	3	Hydatid tumour of the liver. Puncture with a fine trocar on two separate occasions (Robert R.).	Half a pint of clear fluid, containing living echinococci, by the first operation; no mention of that obtained by the second.	The cyst refilled, and a second tapping was necessary. After this it contracted permanently, and the child was quite well when last seen.	Recovery.	Mr. P. H. MacGillivray. Australian Med. Journal, 1872, p. 212.
21	F	13	Tense, fluctuating tumour of the left hypochondrium, and enlargement of the right side by a second cyst. Puncture of the tumour, and a month afterwards puncture with a fine trocar through one of the lower right intercostal spaces (Mary C.).	14 ounces of clear fluid containing healthy echinococci by the first operation. 2 pints of clear fluid with numerous, live, healthy echinococci by the second.	There were evidently two separate cysts in this case, the fluid obtained by both operations being simple hydatid fluid. containing living echinococci. After the left hypochondrium was punctured the swelling of the right side increased. The second operation was followed by pleurisy and fever. The cyst on the left side refilled. The case was still under treatment when the report was printed, and it seemed probable that the cyst first operated on would require puncture again.	Relief.	Mr. P. H. MacGillivray, loc. cit.

No.	Sex.	Age.	Situation of the tumour and treatment.	Nature and quantity of the fluid withdrawn.	Progress.	Result.	Reference to Author.
22	F	26	Globular, fluctuant tumour of the epigastric and right hypochondriac regions. Vertical dulness in right mammary line seven inches, in the left five inches and a half. Apex of the heart corresponded to the fourth interspace. Puncture with a fine trocar and cannula (Sarah B.).	21 ounces of healthy hydatid fluid.	Severe pyrexia with pain and tenderness in the hypogastric region and abdomen generally, with nausea, for the four days following the operation. On the 5th day the tenderness over the liver was much less, and from this time the progress was favourable. On the 16th and 23rd days the liver dulness was the same as before the operation, excepting a decrease of 1 inch vertically. The woman left the hospital feeling well at the latter date. Six months later the hepatic dulness was less in every direction, the position of the heart was normal, all prominence in the epigastric region had vanished, and the vertical measurements were 6 and 1½ inches.	Relief.	Dr. Duffin. Clin. Soc. Trans. vol. vi. p. 24.
23	F	29	Rounded tumour of epigastrium and right hypochondrium. Girth over the greatest prominence thirty-two inches. Liver dulness in the right axillary and xyphoid vertical lines nine and a half inches and twelve inches respectively. Puncture with a fine trocar, and on the ninth day the cyst was again tapped (Louisa C.).	¼ ounce of ordinary hydatid fluid by the first puncture. 28 ounces, slightly opalescent, sp. gr. 1014, throwing down by heat 1/10th its volume of albumen, containing hooklets and granular and fatty detritus, by the second.	In the evening after the first operation there was slight pyrexia, and a sense of tension and aching in the side and back, which subsided in 24 hours. During the following eight days the temp. was about 1° above normal, and the pulse slightly quickened. The dimensions of the tumour were unchanged. No constitutional disturbance followed the second puncture. On the 14th day (five days after the last puncture) the girth around the body was reduced 1½ inches, the vertical dulness in the situations previously indicated was 7 and 6½ inches respectively. At the end of fourteen weeks the liver was not more than an inch in excess of its normal height.	Recovery.	Dr. Duffin. Clin. Soc. Trans. vol. vi. p. 27.
24	M	42	Smooth, globular, tense, fluctuating tumour of the epigastric and hypochondriac regions, encroaching on the umbilical and right lumbar regions.	8½ pints of pus. 3 ounces of the fluid were much clearer than the rest, which was thick and flocculent. It	The progress was in most respects satisfactory, but little abdominal tenderness followed the operation; the swelling returned after a few days, but gradually subsided. There were five periodical (about every fifth day) rises of temperature, and abnormal percussion dulness persisted on the right side of the thorax. He was made an out-patient on,	Ditto.	J. B. Bradbury, M.D. Brit. Med. Journal, Sept. 1st, 1877, p. 290.

			Aspiration, a large needle being used.	contained hooklets and hydatid membranes.	the 38th day, and remained under observation for some months. When seen six months after the operation "he was perfectly well—indeed, in better health than he had been for years, and Dr. Bradbury could detect nothing abnormal either in his abdomen or thorax."		
25	M	50	Tumour of the right hypochondriac and epigastric regions. Hepatic dulness reached to the umbilical level. Puncture with a small trocar (William N.).	61 ounces of clear hydatid fluid.	About three weeks before the operation there were coarse friction sounds over a portion of the tumour, and great pain in and about it. On the second day the pain was less, and there was no bad symptom. Steady recovery ensued, and three weeks afterwards the size of the liver but little exceeded the average.	Ditto.	Dr. Johnson. Clin.Soc.Trans vol. vi, p. 30.
26	F	52	Enormous hydatid tumour of the left lobe of twenty-five years' standing. Abdomen distended and fluctuant. Girth of body fifty-six and a quarter inches. Tapping (Mary A. P.).	After the removal of hydatid membrane, 31 pints of dark, greenish-yellow, opaque fluid, sp. gr. 1016, very albuminous and bilious.	There was much abdominal pain and tenderness and flushing before the operation, and she became very much worse after it. The cyst rapidly filled again, and on 5th day had reaccumulated. She sank rapidly, and died in much pain. The tumour was found to fill the abdominal cavity, extended into the pelvic cavity, and was adherent to the fundus of the uterus and to the abdominal walls and viscera generally. The walls of the tumour were exceedingly thin and soft, and very easily torn. It was full of bile-stained fluid, and a large number of cysts, varying in size from a hazel nut to a cocoa nut, some collapsed and empty, others full, and some of them containing clear fluid.	Death, with reaccumulation and retention of fluid	Dr. Fuller. St. George's Hos. Rep., vol. v, p. 257.
27	F	13	A large fluctuating tumour of the right side. Tapping (Elizabeth K.).	77 ounces, clear, slightly straw-coloured, containing echinococci.	The cyst refilled in great measure, and then seemed to contract somewhat. As the hospital was very much crowded at the time, the girl was sent home, and her parents were instructed to bring her again in a few weeks, but nothing more was heard of her.	Relief.	MacGillivray. op.cit., case 27, vol. xii, p. 73.
28	M	6	A small fluctuating tumour of the right hypochondrium. Puncture with a small trocar (Thomas H.).	2 ounces, clear, containing echinococci.	The patient was discharged 15 days after the operation, with no appearance of the tumour remaining.	Ditto.	MacGillivray. Case 35, op.cit. vol. xii, p. 78.
29	F	11	A tense, fluctuating tumour of the right side. Puncture with a fine trocar (Louisa J. M.).	18 ounces, clear, containing echinococci.	The cyst did not refill, and she was discharged eleven days after the operation.	Ditto.	MacGillivray. Case 36.

No.	Sex.	Age.	Situation of the tumour and treatment.	Nature and quantity of the fluid withdrawn.	Progress.	Result.	Reference to Author.
30	M	17	A fluctuating tumour of the left hypochondrium. Puncture with a fine trocar (Thomas R.).	70 ounces, clear, the latter portion rather milky, and containing echinococci.	The tumour caused some distress in breathing before it was tapped. It did not refill, and the patient was discharged thirteen days after the operation.	Ditto.	MacGillivray Case 58.
31	F	23	Tumour of the right side. Puncture with a small trocar (Mary C.).	114 ounces, clear and limpid, containing echinococci.	A few days after the operation the cyst partly refilled, but contracted again. She was discharged three weeks after the tapping, and neither then nor nine months afterwards was there any appearance of tumour or swelling.	Recovery.	MacGillivray. loc. cit., Case 21, vol. xii, p.
32	M	5	Small fluctuating tumours of right hypochondrium, of the left iliac region, and of the left hypochondrium, successively appearing in this order. The cysts were punctured with a fine trocar at intervals of five and twelve months respectively, the punctures of the r. and l. hypochondrium separated by an interval of at least four inches (Martin A.).	1 pint from the right hypochondrium. The same quantity from the left iliac region, and 10 ounces from the left hypochondrium. In each case the fluid was clear and contained echinococci.	Neither of the cysts refilled, and at the time of operation on the third cyst no trace of the former two could be discovered. But since his discharge, after the second tapping, "he had suffered frequently from severe cough, and his parents said he had occasionally expectorated pieces of white skin 'like tripe,' which, no doubt, were fragments of hydatid cysts. There was marked dulness over almost the whole of the right side of the chest, more decided inferiorly." He was discharged twelve days after the last operation.	Ditto, with discharge by the lung	MacGillivray. op. cit. Case 262. vol. xii, p. 72.
33	M	56	Large, tense, fluctuating tumour. Tapping with a fine trocar, and the operation repeated a fortnight afterwards (James W.).	1½ pint, containing echinococci. At the second operation 1 pint.	The cyst apparently gave way about two months before the first tapping, indicated by sudden burning pain in abdomen, diminution of the size of the tumour, and intense urticaria for three days. The cyst refilled after this and after the first tapping, but no enlargement was apparent afterwards, and at the end of the 3rd month "there was still no appearance of any tumour."	Ditto.	MacGillivray. Case 3, loc. cit. vol. x, p. 215.
34	M	28	Enormous fluctuating tumour, occupying the greater part of the abdomen. Tapping with a large trocar (Matthew N.).	Nearly a gallon and a half.	The tapping was followed by acute peritonitis, from which he died four days after the operation. The cyst was single, and contained no daughter-cysts.	Death from peritonitis.	MacGillivray. Case 6, loc. cit. vol. x, p. 246.

35	M	42	Tapping of the cyst (George T.).	—	Eighteen months after the tapping, as it was evident there were several cysts and that the patient was in a hopeless state, nothing was done. Three large cysts, containing numerous daughter-cysts were found in the liver, one having over a hundred, ranging in size from a pea to a walnut.	Death eighteen months after from extension of the disease.	MacGillivray, op. cit., Case 2, vol. x, 1865. p. 245.
36	M	27	A deeply seated obscurely fluctuating tumour. Tapping (Charles S.).	—	Had been previously in another hospital, where a tumour of the abdomen had been twice tapped. He was discharged about six weeks after the 3rd tapping, seemingly well.	Relief.	MacGillivray. Case 7, loc. cit. vol. x, p. 246.
37	M	45	A large, tense, fluctuating tumour of right side of abdomen, expanding the lower ribs. Tapping with a fine trocar, and repetition of the operation forty-five days afterwards (James B.).	9 pints of clear hydatid fluid by the first, and 5 pints of bile-tinged fluid by the second operation.	The skin was slightly jaundiced before the first operation. The cyst had not refilled at the time of his discharge about a month after the last operation.	Recovery.	MacGillivray. Case 15, op.cit. vol. x, p 249.
38	M	47	Fluctuating tumour of abdomen; ascites and some general dropsy; whole of right side of chest dull. Tapping of the right hypochondrium with a fine trocar. Operation repeated a second time after some weeks, and again ten months after admission (Peter O.)	2 quarts of hydatid fluid. 1½ pint by the second operation.	There was dyspnœa and slight hæmoptysis, and the first operation was employed as a palliative. Great relief was experienced for some weeks, at the end of which time the tumour was enlarged to its former dimensions. Acute peritonitis followed the 3rd tapping, and the man died on the 4th day. Three large cysts were found, two on the liver, one of which had compressed the right lung and caused the dulness, and one on the omentum. They contained a few, but not many, free daughter-cysts.	Death from acute peritonitis.	MacGillivray. Case 9, loc. cit. vol. x, p. 247.
39	M	45	Tumour occupying both hypochondria. Puncture of the right with a fine trocar, and after an interval of ten days puncture of the left tumour.	40 ounces from the right tumour, and 60 from the left.	"He made a good recovery, and the cysts have not refilled." No mention, however, is made of the time when the patient was last seen.	Recovery.	Mr. Gunning. Australian Med. Journal, vol. xx, p. 252.

No.	Sex.	Age.	Situation of the tumour and treatment.	Nature and quantity of the fluid withdrawn.	Progress.	Result.	Reference to Author.
30	M	17	A fluctuating tumour of the left hypochondrium. Puncture with a fine trocar (Thomas R.).	70 ounces, clear, the latter portion rather milky, and containing echinococci.	The tumour caused some distress in breathing before it was tapped. It did not refill, and the patient was discharged thirteen days after the operation.	Ditto.	MacGillivray. Case [illegible]
31	F	23	Tumour of the right side. Puncture with a small trocar (Mary C.).	114 ounces, clear and limpid, containing echinococci.	A few days after the operation the cyst partly refilled, but contracted again. She was discharged three weeks after the tapping, and neither then nor nine months afterwards was there any appearance of tumour or swelling.	Recovery.	MacGillivray. loc. cit., Case 24. vol. xii, p.
32	M	5	Small fluctuating tumours of right hypochondrium, of the left iliac region, and of the left hypochondrium, successively appearing in this order. The cysts were punctured with a fine trocar at intervals of five and twelve months respectively, the punctures of the r. and l. hypochondrium separated by an interval of at least four inches (Martin A.).	1 pint from the right hypochondrium. The same quantity from the left iliac region, and 10 ounces from the left hypochondrium. In each case the fluid was clear and contained echinococci.	Neither of the cysts refilled, and at the time of operation on the third cyst no trace of the former two could be discovered. But since his discharge, after the second tapping, "he had suffered frequently from severe cough, and his parents said he had occasionally expectorated pieces of white skin 'like tripe,' which, no doubt, were fragments of hydatid cysts. There was marked dulness over almost the whole of the right side of the chest, more decided inferiorly." He was discharged twelve days after the last operation.	Ditto, with discharge by the lung	MacGillivray. op. cit. Case 262. vol. xii, p. 72.
33	M	56	Large, tense, fluctuating tumour. Tapping with a fine trocar, and the operation repeated a fortnight afterwards (James W.).	1½ pint, containing echinococci. At the second operation 1 pint.	The cyst apparently gave way about two months before the first tapping, indicated by sudden burning pain in abdomen, diminution of the size of the tumour, and intense urticaria for three days. The cyst refilled after this and after the first tapping, but no enlargement was apparent afterwards, and at the end of the 3rd month "there was still no appearance of any tumour."	Ditto.	MacGillivray. Case 3, loc. cit. vol. x, p. 245.
34	M	28	Enormous fluctuating tumour, occupying the greater part of the abdomen. Tapping with a large trocar (Matthew N.).	Nearly a gallon and a half.	The tapping was followed by acute peritonitis, from which he died four days after the operation. The cyst was single, and contained no daughter-cysts.	Death from peritonitis.	MacGillivray. Case 6, loc. cit. vol. x, p. 246.

35	M	42	Tapping of the cyst (George T.).	—	Eighteen months after the tapping, as it was evident there were several cysts and that the patient was in a hopeless state, nothing was done. Three large cysts, containing numerous daughter-cysts were found in the liver, one having over a hundred, ranging in size from a pea to a walnut.	Death eighteen months after from extension of the disease.	MacGillivray, op. cit., Case 2, vol. x, 1865. p. 245.
36	M	27	A deeply seated obscurely fluctuating tumour. Tapping (Charles S.).	—	Had been previously in another hospital, where a tumour of the abdomen had been twice tapped. He was discharged about six weeks after the 3rd tapping, seemingly well.	Relief.	MacGillivray. Case 7, loc. cit. vol. x, p. 246.
37	M	45	A large, tense, fluctuating tumour of right side of abdomen, expanding the lower ribs. Tapping with a fine trocar, and repetition of the operation forty-five days afterwards (James B.).	9 pints of clear hydatid fluid by the first, and 5 pints of bile-tinged fluid by the second operation.	The skin was slightly jaundiced before the first operation. The cyst had not refilled at the time of his discharge about a month after the last operation.	Recovery.	MacGillivray. Case 15, op.cit. vol. x, p 249.
38	M	47	Fluctuating tumour of abdomen; ascites and some general dropsy; whole of right side of chest dull. Tapping of the right hypochondrium with a fine trocar. Operation repeated a second time after some weeks, and again ten months after admission (Peter O.)	2 quarts of hydatid fluid. $1\frac{1}{2}$ pint by the second operation.	There was dyspnœa and slight hæmoptysis, and the first operation was employed as a palliative. Great relief was experienced for some weeks, at the end of which time the tumour was enlarged to its former dimensions. Acute peritonitis followed the 3rd tapping, and the man died on the 4th day. Three large cysts were found, two on the liver, one of which had compressed the right lung and caused the dulness, and one on the omentum. They contained a few, but not many, free daughter-cysts.	Death from acute peritonitis.	MacGillivray. Case 9, loc. cit. vol. x, p. 247.
39	M	45	Tumour occupying both hypochondria. Puncture of the right with a fine trocar, and after an interval of ten days puncture of the left tumour.	40 ounces from the right tumour, and 60 from the left.	"He made a good recovery, and the cysts have not refilled." No mention, however, is made of the time when the patient was last seen.	Recovery.	Mr. Gunning. Australian Med. Journal, vol. xx, p. 252.

No.	Sex	Age	Situation of the tumour and treatment	Nature and quantity of the fluid withdrawn	Progress	Result	Reference to Author
48	M	8	Globular, smooth, painless, fluctuating tumour connected with the upper surface of the liver, and depressing the viscus. Girth of body over the most prominent part 25 inches. Puncture with a fine trocar and cannula (Albert D.)	6 ounces, clear, sp. gr. 1011.	Some febrile disturbance followed, but subsided after four days. The patient left the hospital on the 14th day, the girth being reduced [illegible] of an inch, and the swelling being much less prominent and tense, but to the right of the cyst which had been tapped appeared to be a second, in which, however, fluctuation was not very distinct.	Relief.	Murchison, op. cit., p. 94, Case XII.
49	M	25	A prominent tumour projecting from the right lobe of the liver. Puncture with a fine trocar and cannula (Mr. P.)	8 ounces, thin, turbid, sp. gr. 1010, containing pus, cholestrin booklets, and shreds of membrane.	For three or four days after the operation much pain and sickness. After 14 days the tumour was smaller. The tumour soon enlarged to nearly its original dimensions (7½ inches in both directions), but ultimately was reduced to 1½ and 5½.) Seven months after the operation he had no discomfort from the tumour, which continued to get smaller and felt harder; he was much stouter, and the general health was excellent.	Recovery	Murchison, op. cit., p. 95. Case XIII.
50	M		Large tumour of the liver. Simple puncture (Isidore W.).	A large quantity of clear salt fluid, and small hydatid vesicles.	At the end of a fortnight it was thought unnecessary to tap the tumour again; but it subsequently increased, and produced intermittent jaundice, and probably albuminuria.	Temporary relief	Case 1 of the present paper, p. 323.
51	F	43	Hydatid cysts of the liver. Two or three were punctured and their contents removed by the aspirator. Four months afterwards the cysts were again tapped and injected with tincture of iodine.	Clear, alkaline, and slightly albuminous fluid, containing much chloride of sodium but no echinococci. The nature of the fluid subsequently evacuated is not stated.	A slight rise of temperature followed the first operation, but she was discharged a week after it. The tumour began to increase from this time, and she was re-admitted four months afterwards. The injection of iodine caused pain, but very little constitutional disturbance. She continued to improve, and was discharged a month afterwards. Some months afterwards she was greatly improved in health; but no mention is made of the condition of the abdomen.	Recovery ?	Dr. R. G. Alexander. Lancet, vol. i, 1875.
52	M	30	Large, fluctuant tumour of the epigastric, umbilical,	85 ounces of clear, colourless, hydatid	The patient was discharged, greatly relieved, 16 days after the operation. At the time of the second operation the	Recovery.	S. W. Fearn. Brit. Med.

			hypochondriac, and right lumbar regions, the liver dulness extending two inches higher than the right nipple. Puncture with a small trocar. 14 weeks after a second tapping and injection of the cyst with diluted tincture of iodine (James C.).	fluid, sp. gr. 1012. By the second puncture, 40 ounces of turbid whey-like fluid.	tumour had attained its full size. The iodine injection caused some pain and smarting. No further note was made at the time, but it appears that the progress was satisfactory. Fifteen months after the last tapping the hepatic dulness was still excessive, extending almost as high as the right nipple, and lower than normal. The patient was perfectly recovered, and the right lung, which was compressed, worked healthily and easily, and there was neither pain nor bad breathing.		Journal, 1868 vol. ii, p. 496.,
53	M	34	Multiple hydatid tumours of liver. Puncture of anterior fluctuating space, of fluctuating space to the right of this, and of fluctuating space between 10th and 11th ribs at the back, by a fine trocar, at intervals of nine and sixty days respectively (Henry A.).	4 oz., 7 oz., and 1½ oz. of clear hydatid fluid respectively.	Some uneasiness of the side, flatulency, diarrhœa and jaundice, which existed before the treatment, persisted to the 103rd day, when he left the hospital.	Relief.	Murchison, Case xxvi, op. cit., p. 99.
54	M	45	Multiple hydatid tumours of the liver and peritoneum, nodulating the enlaged abdomed. Puncture with a small trocar of a small cyst overlying one on the left lobe of liver. After an interval of a year puncture with a fine trocar of a large cyst between the umbilicus and sternum. Paracentesis abdominis on the fifth day, and removal of 140 fluid ounces of serum; sp. gr. 1016, loaded with albumin (Charles M.).	A drachm and a half clear alkaline fluid by the first, and 28 ounces of similar fluid by the second operation; sp. gr. 1009	There was constant interruptions to the flow at the second operation. On the 23rd day, and for the week following, there was considerable pyrexia and ascites, œdema of the legs. Enlargement of the veins on the abdominal wall, which existed on his readmission, increased considerably, and the girth of the abdomen (44 inches) was 4 inches more; orthopnœa severe. The removal of peritoneal fluid gave relief; fluid did not accumulate; the œdema almost disappeared from the legs. The patient was able to leave bed a month afterwards, and he seemed as well as usual, but on getting into bed his breathing became suddenly embarrassed, and in twenty minutes he was dead. Nothing was found to account for death. The cyst last tapped contained 6 pints of hydatid cysts, and thin pus. Another cyst in the right lobe of liver contained 4—5 pints of thin opaque fluid, bile pigment and a few hydatid cysts. There were numerous smaller cysts in the liver, and on the surface of omentum and other parts of the peritoneum.	Sudden death, probably from increasing pressure on the diaphragm.	Murchison, Case xxviii, op. cit., p. 102.

No.	Sex.	Age.	Situation of the tumour and treatment.	Nature and quantity of the fluid withdrawn.	Progress.	Result.	Reference to Author.
55	F	23	Fluctuant tumour of right hypochondrium displacing the right lower ribs outwards, and descending very nearly to a level with the umbilicus. Insertion of a grooved needle. Destruction of an area of skin by caustic potash,* and puncture through the base of the deep ulcer with a medium-sized trocar (M. B.).	A jet of clear fluid by the grooved needle A quart of clear hydatid fluid, containing numerous hooklets, by the cannula.	Three days after the operation the patient left her bed free from pain and much relieved of the uneasiness which the distension had before occasioned, the tumour was nearly gone, and the distortion of the body diminished. No return of the enlargement occurred. She was seen at considerable intervals, and continued well, the tumour having quite disappeared.	Recovery.	Dr. J. D. Heaton, Brit. Med. Journ. 1869, vol. i. p. 309.
56	M	24	Fluctuating tumour of right hypochondrium; a second projecting from lower margin of left lobe; a third projecting behind the first; subcutaneous veins, on right side of trunk enlarged. Evidence of slight ascites; deep jaundice for about twenty days; persistent diarrhœa and dyspnœa; slight crepitation at base of right lung. Puncture of cyst in right lobe with exploratory trocar. Two days later the cyst in left lobe was punctured	By exploratory puncture 7 ounces, viscid, yellowish, purulent, with shreds of hydatid membrane and blood crystals. By the second puncture only a few drops of fluid. By the third 80 ounces of yellow pus, with collapsed hydatids and fragments of cysts; the last few ounces deeply tinged with blood.	No constitutional disturbance followed the punctures, and great relief followed the third. On the 21st day the patient left the hospital, the girth over the most prominent part of the abdomen being half an inch less (38 inches) than when he was admitted. On account of the hæmorrhage no attempt was made to empty the sac: on the contrary, the cannula was withdrawn, and the opening sealed by collodion. After his discharge the tumour continued to increase, and on the 31st day profuse diarrhœa came on with the discharge of hydatid membranes per anum. On the 36th day the jaundice had disappeared, the girth was reduced to 3½ inches, but the patient became suddenly collapsed, and died the next day. There was recent peritonitis in the neighbourhood of the liver, and the peritoneum contained a pint of fluid. The common bile-duct was dilated, and opened into two large communicating cysts in the r. lobe. The lower (the one which was punctured) contained much reddish-brown pus.	Death from peritonitis and exhaustion induced by inflammation of the cyst and attempts to empty itself through the common bile-duct and lung.	Murchison, op. cit., Case xxxi. p. 109.

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* Dr. Heaton informs me that he has now discarded the painful and dilatory process of making an eschar before puncturing.

			with a fine trocar, and four days afterwards a large trocar was passed into the cyst in right lobe, and the operation was repeated five days later (Charles W.).]	By the fourth puncture 4 ounces, containing much blood, partly clotted, and hydatid membranes.	numerous hydatid cysts up to the size of an orange, and the collapsed and ruptured parent cyst which had separated from the wall of the cavity, and this was lined with flocculent lymph. The upper cyst contained similar matters; it was adherent to the diaphragm, and this to the base of the lung; the diaphragm was perforated, and the adherent lung was broken down to the extent of about a cubic inch. A third cyst projected from the anterior margin of the l. lobe.		
57	M	28	Hydatid tumour of liver. Rupture from fall, peritonitis, followed by great enlargement and fluctuation of abdomen. Paracentesis, repeated twice at intervals of fourteen and eighteen days.	10 pints of turbid, ochre - coloured fluid, and with small hydatid vesicles; 8 pints of similar fluid; and 17½ pints, respectively by the three punctures.	The first operation aroused the patient from a moribund condition, the second gave relief, the third was followed by a constant pain in the abdomen, shivering, suppuration of the punctures, and after a fortnight rupture of the cyst into the intestinal canal and discharge of 14 pints of fluid and cyst membranes per anum, some very large. A year after the first puncture recovery with disappearance of the abdominal swelling. At the end of two years reappearance of the hepatic tumour, with icterus, rupture through the diaphragm, discharge by the lungs, and death 2 months afterwards.	Death from extension of the disease into the lung, and exhaustion.	Case 6 of this paper. see p.325.

TABLE II.—*Containing cases treated by electrolysis; by simple puncture followed by electrolysis* (*Case* 66); *and by acupuncture* (*Case* 67).

58	F	7	Smooth, round, fluctuating tumour of right hypochondrium, bulging the ribs. Electrolysis under chloroform; current passed 20 minutes (Susan B.).	A drop of clear fluid escaped when the lower needle was withdrawn.	A severe paroxysm of pain an hour afterwards, but it soon passed off. No further notes. Discharged twelve days after. About nine weeks later the tumour was still plainly to be felt. About a year after the operation the Surgical Registrar failed to discover any tumour in the abdomen.	Recovery.	Dr. C. Hilton Fagge and Mr. Durham. Medico-Chir. Trans., vol. liv, Case 1, p. 2.

No.	Sex.	Age.	Situation of the tumour and treatment.	Nature and quantity of the fluid withdrawn.	Progress.	Result.	Reference to Authority.
59	M	17	Tumour in the right lobe pushing up the diaphragm and bulging the ribs. No fluctuation. Needles inserted, one between 8th and 9th cartilage six inches and a half from median line; the other between 9th and 10th two inches further outwards. Electrolysis during 25 minutes (William P.).	—	Pain in the chest followed the operation, with a rise of temperature and retention of urine. Next day the pulse and temperature were normal, the third day there was moderate pyrexia, and signs of fluid effusion in right pleura, to the nipple in front, and to four and a half dorsal spines behind. This had disappeared on the tenth day. The tumour gradually subsided, and about four months after the operation there was no difference in outline between the two sides of the chest, and no indication was left of the disease. Two years later he was still in perfect health.	Recovery.	The same. Case 2, p. [illegible]
60	M	13	Two elastic tumours, "one occupied the epigastric region, extending on the left to the level of the nipple, and downwards to midway between the ensiform cartilage and the umbilicus. The other was situated on the right side, and extended from the margin of the ribs to the crest of the ilium." A "third" hydatid tumour of the liver was tapped and transparent fluid withdrawn.		Urticaria was the only disturbance that followed the operation. At the end of three weeks the parts in the position of the tumour were quite flaccid. Later no trace of the two cysts could be felt, but the liver was considerably enlarged. About a year after the operation there was still a little fulness of epigastrium, but no defined tumour could be detected. In the spring of the following year the patient came under Dr. Rees's care with a "third" cyst, according to Dr. Philips, in a "position different from that of either of those previously operated on."	Relief, subsequent extension of the disease.	The same. Case 3, p. 11
61	M	4	Double hydatid tumour occupying the epigastrium and right hypochondrium. Electrolysis of each cyst under chloroform (Alfred H.)	—	Seven hours and a quarter after the operation there was slight fluctuation in the lower part of the abdomen; next day more distinct, and pain. The patient quickly returned to his original health, but the tumour continued to increase, and about thirteen weeks after the operation the left tumour reached nearly to the umbilicus, while the one on the right side had subsided. Twenty-one months after the operation the liver was still low down, but the tumour and abdomen generally had greatly decreased in size.	Relief.	The same. Case 4, p. 12.

62	F	7	Two or three distinct tumours growing from the convex surface of liver, the most prominent distinctly fluctuating, occupying the left hypochondrium, another bulging the right ribs, a third seemingly projecting from the under surface of the liver, the lower edge of which reached the right iliac fossa. Electrolysis under chloroform of the left tumour, and after eleven days of the right one (C. S.).	A drop of clear fluid followed the removal of one of the needles.	Repeated vomiting after the operations, and the cyst became softer and could not be distinctly felt. Next day pain over the cyst, slight tenderness, but the tumour was softer. Distinct fluctuation at lower part of abdomen. 2nd day.—Measurement of abdomen increased 1 inch. 3rd day.—Fluctuation less distinct; measurement as before the operation. After the second operation (11th day) no fluid could be detected in the abdomen; there was much pain. Next day distinct fluctuation both in the cyst and lower part of abdomen. 13th day.—Abdomen fluctuant, increase of girth $2\frac{1}{2}$ inches. On the 28th day there was no doubt about the diminution in the size of the tumours. Six months afterwarns an obscure fulness was all that remained of the large tumours.	Recovery.	The same. Case 5, p. 18.
63	F	9	Bulging of lower part of chest, of right side and front of abdomen, from 6th rib, in mammary line to level of navel, an elastic feel, but no fluctuation nor thrill; edge of liver sharp and defined. Electrolysis (E. M.).	—	Pyrexia the evening after the operation and four days following; temp. from 102·6° Fahr. to 99·8°. On the 10th day there was a general rash resembling scarlatina, and and evidence of fluid in the peritoneal cavity. On the 4th day tumour decreased; no longer elastic. 14th day.—There was still bulging of the right side, but the swelling had considerably decreased. 7 months after "the tumour had entirely disappeared, leaving at most a slight fulness of the epigastrium; the ribs had returned to their proper position.	Ditto.	The same. Case 6, p. 22.
64	M	$5\frac{3}{4}$	Slightly thrilling tumour of the epigastrium slightly bulging the right ribs; right lobe of liver pushed downwards nearly to the crista ilii. Electrolysis under chloroform (Alfred C.).	Two drops of clear strongly alkaline fluid followed the removal of one of the needles.	The evening after the operation the upper part of the abdomen was soft and pulpy; fluctuation, if any, was very doubtful. On the 2nd day the body girth measured $1\frac{1}{4}$ inch less; next day 2 inches less, and the next 22 inches, the size before the operation. No constitutional disturbance occurred, and the child left his bed on the 5th and the hospital on the 10th day. A month after the operation he was readmitted with signs of consolidation of the apex of right lung. The tumour was then much less defined. A year and a half later, traces of the tumour were still perceptible.	Ditto.	The same. Case 7, p. 24.

No.	Sex	Age	Situation of the tumour and treatment.	Nature and quantity of the fluid withdrawn	Progress	Result	Reference to Author
65	F	27	A firm, elastic, indistinctly fluctuating, but thrilling tumour, pushing out the lower ribs on the right side, and extending to within 3⅞ inches of the anterior superior spine of ilium, and 1¾ inch of the umbilicus. Electrolysis 16 minutes (Eliza M.)	A little fluid escaped as the needles were withdrawn.	Considerable pyrexia followed the operation, and had not subsided at the end of 19 days. On the 5th day shivering. On the 10th and 18th days the tumour was undiminished, but scarcely so tense. There was still dragging pain in the hypochondrium. On the 32nd day there was a decided diminution in the tumour, and he was in good health. 9 months after the operation there was but little trace of the tumour. The health was excellent.	Recovery.	The same. Case 8, p. 28.
66	F	14	A tense obscurely fluctuating tumour of the epigastrium. Puncture with a fine trocar, then electrolysis. One needle only introduced for 5 minutes (M. M.)	2 ounces of clear watery fluid were removed by the trocar.	Slight disturbance followed. The tumour was "almost quite gone" 30 days after the operation, but the lower edge of the left lobe of the liver could be traced an inch above the umbilicus.	Relief.	Dr. C. Handfield Jones. Med. Times & Gazette, vol. i. 1874, p. 421.
67	F	6¾	Tense, hard, indistinctly fluctuating, spherical tumour of the right hypochondrium, descending below the level of the umbilicus. Introduction of 2 fine gilt needles under chloroform, for 5 minutes (Esther C.).	—	Immediately after the operation the tumour was considered to be less tense and prominent. The temperature began to rise soon after, and in 24 hours after reached 102°, falling next morning to 98·6°, but fluctuating for some days, the highest being 102·6° on the 4th day. Besides this there was no disturbance. The tumour underwent gradual but progressive diminution, and when last seen less than a month after the operation it could be detected only by manipulation as a soft, rounded, readily movable mass.	Recovery.	Dr. Fagge and Mr. Durham. Med.-Chir. Trans., vol. liv. Case 9, p. 43.

TABLE III.—*Containing cases in which the tumour was punctured once or more, and a communication with the interior of the sac maintained at first or subsequently.*

No.	Sex	Age	Situation of the tumour and treatment.	Nature and quantity of the fluid withdrawn	Progress	Result	Reference to Author
68	F	39	Tumour of the left hypochondrium, descending to about two inches above the umbilical line. Puncture with a fine trocar and cannula, an inch to	1 ounce of clear, transparent fluid. Obstruction by a piece of shreddy membrane, and on its removal about	About 40 hours after the first operation rigor, nausea, and bilious vomiting, severe pyrexia with pain, and tenderness in the epigastrium, and uneasy breathing ensued. On the 6th day there was sweating; pulse 110 to 120; temp. 102·5° to 104 Fahr. From the 10th to the 13th day the tumour increased. After the introduction of the large	Radical cure.	Dr. Duffin. Clinical Soc. Trans., vol. vi. p. 25.

			the left of the linea alba, and nearly four inches from the surface. Insertion and retention of a cannula the size of No. 7 catheter on the 14th day, and on the 17th it was replaced by one the size of a No. 14 catheter (Mary Ann S.).	a ¼ ounce more fluid.	cannula "a general rally set in," and the next 3 days 3 to 4 ounces of pus and hydatid were evacuated daily. The cyst did not decrease, and pyrexia recurred. The day after the insertion of the largest cannula 17 ounces of mixed pus and hydatids were evacuated. A fall of pulse and temperature and sleep resulted. On the 19th day the pus was free from fœtor. Collapsed cysts continued to be evacuated daily in abundance till the 27th day with 4—6 ounces of pus. The suppuration then diminished, the tumour receded, the general health rallied, and on the 71st day the fistula had completely healed.		
69	F	8	Tense, elastic tumour, projecting into the epigastrium. Tapping with a a fine trocar, and repetition of the operation twice at intervals of two months. About five months after the first operation a large trocar was used, and a drainage tube retained in the sac (Amelia H.).	1 pint, clear, by the first; about 1 ounce only by the second; about 1 ounce of healthy pus by the third; and about 1 pint of fœtid pus by the fourth operation.	The patient was discharged about a fortnight after the first tapping with nothing noticeable except a slight bulging of the liver. She was readmitted 18 days after, and again discharged 16 days after the second tapping, and attended as an out-patient, but becoming weak and hectic from suppuration and enlargement of the cyst she was admitted a third time. The third operation was followed by relief, but shortly after she became much worse, the tumour being very much enlarged. After the insertion of the drainage tube the discharge continued for about 3 weeks, when the child was quite cured, and about a month later was running about hearty and well.	Radical cure.	Mr. MacGillivray and Dr. Atkinson. Australian Med. Journ., Case xiv, vol. x, 1865, p. 248.
70	M	32	Tumour, size of a fœtal head, occupying the epigastric and parts of the right and left hypochondriac and umbilical regions. Puncture with a small trocar, and after nine or ten weeks puncture with a large trocar; injection of the cyst with a pint of warm water. Wound allowed to close; reopening on the 6th day, a drainage tube inserted, and the sac washed out with solution of potassic permanganate (James T.).	11 ounces, clear, citron coloured; portions of hydatid membrane obstructing the flow. 25 ounces of thin pus, and an enormous number of hydatids by the second tapping. On reopening the wound 18 ounces of putrid sanious pus.	A friction sound was heard over the tumour before the operation, and it had become painful. No special annoyance followed the tapping, and the man left the hospital on the 8th day with the liver undiminished. Readmission 2 months afterwards, when the tumour was larger and painful, and the patient was feverish and losing flesh. Material relief followed the second tapping, but the old lumbar pains returned 4 days afterwards, and 2 days later the swelling and pyrexia were again found to be rapidly increasing. Very great relief followed the free evacuation of the contents of the cyst, and from this time the patient did well. The discharge of hydatids continued for a time, sometimes obstructing the drainage-tube, but the sac contracted. At the end of 2 months the man left the hospital. 7 months from the second tapping the fistula was healed, and the liver dulness was of normal dimensions.	Ditto.	Dr. G. Johnson. Clin. Soc. Trans., vol. vi, p, 31.

No.	Sex.	Age.	Situation of the tumour and treatment.	Nature and quantity of the fluid withdrawn.	Progress.	Result.	Reference to Authority.
71	M	61	Tumour of the right hypochondrium. Puncture with a fine trocar, and 3 weeks after with a large trocar, insertion of a tube (William G.).	2 pints, clear, living echinococci by the first operation; and by the second a quantity of pus and cysts.	Suppuration followed the first operation. A perfect cure resulted from the second and the after treatment.	Radical cure.	P. H. MacGillivray. Australian Med. Journ., 1872, p. 212.
72	F	39	Rounded, fluctuant tumour of the right hypochondrium. Puncture with a small trocar. A month (30th day) afterwards, repetition of the operation; the wound was left open and a poultice applied. On the 41st day tapping with a large trocar, injection of solution of carbolic acid (1 in 30) through an elastic catheter introduced six or eight inches. Cyst washed out daily with carbolic acid water.	3 pints of perfectly clear, hydatid fluid sp. gr. 1012, by the first operation. 1½ pint of yellow, opaque, purulent fluid, sp. gr. 1020 by the second. An enormous quantity of horribly offensive, greenish fluid, followed the last puncture.	The cyst had refilled on the 4th day. On the 6th day there was slight discharge from the puncture, and some constitutional disturbance. Subsequently this was much increased, and she had rigors, due to retention of the discharge. After the evacuation of the contents of the cyst were freely provided for, there was great improvement in health. Many large pieces of cyst-wall came way. 3 months after the first operation, and 50 days after the last, the discharge was less, and she was gaining flesh. At the end of about 6 months she was discharged cured.	Ditto.	Mr. T. Sympson. Brit. Med. Journ., 1870, vol. i. p. 437.
73	M	35	An indistinctly, fluctuant tumour of the right hypochondrium, extending below the umbilicus and a little to the left of the median line. Use of the aspirator, and immediately afterwards the formation of a free opening with a scalpel, two inches above, and one inch to the	Only a few drops of thick, offensive, greenish fluid were obtained by the aspirator. 60 ounces of purulent matter and broken up membrane flowed through the in-	The patient was liable to "ague" attacks. He vomited soon after admission, and the skin was recently jaundiced. At the time of the operation the temperature was 103°, the pulse 120, and respirations 36. He was very prostrate, and appeared to be suffering great pain. His expression was that of extreme anxiety, and his voice was reduced to a whisper. The operation gave great relief. The discharge which often appeared to be bile only continued for some time. On the 14th day a probe passed to the depth of six inches through the wound. For several	Ditto.	Dr. Ramsgill. Brit. Med. Journ., 1874, vol. ii. p. 619.

			right of the navel, and the insertion and retention of a drainage tube (P. M.).	cised opening.	weeks about 2 ounces of creamy pus mixed with blood flowed daily. At the end of 5 weeks he felt better than he had done for many months. On the 38th day, after a hearty breakfast, he had an aguish fit, but quickly recovered. On the 44th the probe sank to the depth of 4½ inches in the wound. On the 48th he had another evanescent attack of pyrexia, the flow at the time was irregular. On the 65th day the discharge had ceased, the wound was apparently closed, the jaundice had disappeared. He had gained considerably in weight, and expressed himself as being "very well."		
74	M	35	Fluctuating tumour of the epigastric and hypochondriac regions. Puncture with a fine trocar and cannula, and repetition of the operation a month afterwards (31st day). On the 39th day puncture with a small trocar, and as no purulent fluid escaped immediately afterwards a large trocar and cannula were introduced, and the hydatid vesicles cleared out of the latter with a feather. The cannula was retained in the wound. On the 61st day it was withdrawn, and a laminaria tent introduced instead. On the 63rd day a large drainage tube was introduced into the sac. The sac was washed out with 2 per cent. solution of carbolic acid, and about 2 ounces of a solution of iodine 6) drachms of the tincture to twenty ounces of water) were injected on the 74th, 79th, and four following days, and on the 87th day the sac was cleared out, and a solution of iodine again injected (W. B.).	The first puncture liberated 24 oz. of hydatid fluid, sp. gr. 1005, neutral; at first clear and afterwards like milk and water. The second was followed by the discharge of 24 ounces of neutral fluid, sp. gr. 1005. On the 39th day about 8 ounces of purulent fluid and hydated vesicles, up to the size of a racquet ball, were drawn off. A spontaneous discharge of similar fluid and vesicles occurred occasionally, and by the aid of a feather from 3 to 80 ounces of similar discharge were from day to day liberated.	The first puncture was followed by moderate constitutional disturbance, but no local pain or tenderness. On the 6th day he fainted twice, and the conjunctivæ were a little yellow. On the 21st day the abdomen was almost as large as before the tapping. 9 days after the second tapping the girth over the tumour was 1½ inch more than it was before the first puncture. As soon as the discharge became free the patient improved, and sat up on the 60th and 61st days. The tent had slipped into the sac, but came away two days afterwards. About the 78th day there was retention of the discharge, which became fœtid. After the sac was cleared and iodine injected on the 87th day, the patient complained at once of great pain, went to bed, and had a violent rigor followed by great collapse. Next day all unpleasant symptoms had passed off, there was no distension nor great tenderness of the abdomen, and a good deal of dark offensive discharge came away through a tube introduced into the cyst. From this time recovery was uninterrupted. On the 123rd day he had the appearance of health, and 7 months after the operation the liver dulness was normal, and the opening in the abdomen had quite healed.	Ditto.	Dr. J. B. Bradbury. Brit. Med. Journ., 1874, vol. ii, p. 494.

No.	Sex.	Age.	Situation of the tumour and treatment.	Nature and quantity of the fluid withdrawn.	Progress.	Result.	Reference to Author.
75	F	32	Large, obscurely fluctuating tumour of the epigastric and hypochondriac regions extending to the lumbar and umbilical regions. Introduction of aspirator needle, and immediately afterwards a trocar and cannula. Introduction of an india-rubber tube through the cannula and removal of the latter. On the 42nd day insertion of a large tube, together with a laminaria tent, which were removed the next day, the old tube being reintroduced. On the 65th day the use of a laminaria tent, and the next day the introduction of a larger tube (A. A.).	The discharge was slightly purulent from the first. 9 ounces were removed on the 1st day before the introduction of the tube. It contained numerous fat particles, granular matter, a few corpuscles, and much cholesterin. On the 20th day the first hydatid vesicles were discharged.	Considerable pyrexia followed the operation. Free discharge from the tube occurred only at intervals. On the 18th day there was very little through the tube, but a free discharge between it and the edge of the opening itself. Signs of lung inflammation arose, and the cough gave great pain in the tumor. Two days afterwards the pulse was 124, and temp. 102° to 104·2 Fahr. There was evidently an obstruction to the free discharge of the contents of the cyst until the 43rd day, when a free evacuation, including what appeared to be the parent cyst, followed the removal of the tent and larger tube. On the 57th day 16 ounces of thick brownish-red pus came away with a number of small cysts. Between this date and the 65th day the opening was not sufficiently patent, and the progress of the patient was hindered. After the last appliance a large quantity of pus strained away and the patient improved much. She left the hospital wearing a drainage-tube on the 86th day, and attended as an out-patient until the wound was healed. About a year and a half afterwards she applied for relief for a cough, which soon left her, and when last seen there was no evidence of any hepatic tumour, and she was quite well.	Radical cure.	Dr. J. B. Bradbury. Brit. Med. Journ., 1874, vol. ii, p. 559.
76	F	Adult.	An indistinctly fluctuant tumour of the right hypochondrium and epigastrium. Introduction of a grooved needle and then a large trocar; imposition of an elastic tube through the cannula and removal of the latter. Three weeks afterwards dilatation of the wound	A pint or more of clear hydatid fluid,	No other symptoms followed the tapping. After 3 weeks the patient had some constitutional disturbance, due to retention of the discharge, which was at this time purulent and rather fœtid. After enlarging the opening a large quantity of fœtid hydatid *débris* and purulent fluid escaped, and subsequently there was a copious discharge of pus, which after a time was stained yellow, and sometimes the discharge was almost pure bile. During the progress of the case there were two rather severe attacks of pleurisy with pneumonia. Under mild treatment these subsided, and the discharge diminished.	Ditto.	Dr. Humphry. Brit. Med. Journ., 1874, vol. ii, p. 588

			under chloroform, and the passage of carbolised water through the sac. Retention		The wound was allowed to close very slowly, and thus healing was attended by a radical cure.		
			of a gum-elastic tube, nearly one inch in diameter, in the wound. In course of time a smaller tube was substituted for the larger, and retained for some months until the discharge had nearly ceased.				
77	F	32	A freely movable indistinctly fluctuating tumour, about the size of an ox kidney, across the abdomen, a little below the umbilicus. Puncture with a capillary trocar and aspiration. A week after, a repetition of the operation, and twenty-five days afterwards a free incision along the linea alba to the surface of	At the first and second operations a few ounces of turbid fluid. None passed through the large cannula. The incision set free a large quantity of hydatid cysts, floating in a purulent fluid.	The first tapping gave relief, but the tumour regained its original size before the second tapping, which caused a rapid increase, inflammation of the cyst, rigors, high pulse, temperature 103°, and a feeling that he should die if not relieved. The tumour became fixed, tender, and as large as a child's head before the cyst was freely laid open, after which the patient progressed favorably. The cavity of the cyst gradually contracted to a small sinus, which ultimately closed, and the patient was discharged cured on the 108th day after the first puncture.	Radical cure.	Thomas Annandale, F.R.S.E. Brit. Med. Journ., January 27th, 1877, p. 99.
			cyst, and insertion of a large trocar and cannula, then free incision of the cyst, evacuation of its contents; the edges of incision and cyst wall stitched together, and two large drainage tubes inserted into its cavity, and antiseptic dressing used.				
78	F	17	A tense, elastic tumour of right hypochondriac and epigastric regions. Two unsuccessful attempts at puncture. A third puncture with No. 8 trocar, midway between umbilicus and ensiform cartilage caused the evacuation of . . . . . Cannula retained till the 25th day. A catheter subsequently introduced daily, and the cyst washed out.	Only 1 drachm of clear, non-albuminous fluid obtained by the first punctures. 26 ounces of turbid, semi-purulent fluid, with a piece of hydatid membrane.	A little general uneasiness followed the first two punctures. After the 3rd the discharge was free, and sometimes stained with bile for the first 20 days. During the next 5 there was none, and on the 35th day pain and constitutional disturbance. On the 37th the opening was seen to be plugged by hydatid membrane. The next day the whole mass of hydatid membrane and several pints of very offensive purulent bile-strained fluid was expelled, the pain and swelling disappeared, the discharge decreased from day to day, and on the 68th day the wound was healed.	Radical cure.	Dr. Owen Rees and Mr. Thomas Bryant. Path. Soc. Trans., vol. xviii, p. 168, 1866.

No.	Sex.	Age.	Situation of the tumour and treatment.	Nature and quantity of the fluid withdrawn.	Progress.	Result.	Reference to Author.
79	F	37	Dull, fluctuating tumour of the liver, encroaching on the chest and raising the ribs, especially on the right. Girth of body at navel level 35½ inches. Vertical incision two inches long, ending at three inches above the navel, and insertion of a piece of chloride of zinc in the wound for 24 hours. Free incision of the hydatid cyst on the 17th day, and daily injection of iodine water or solution of permanganate of potash.	5 quarts of limpid, inodorous, non-albuminous fluid were evacuated when the cyst was opened, and a week afterwards false membranes and hydatid *débris* were discharged.	The action of the caustic was very energetic, and caused great pain and high fever for some days. After incision and evacuation of the cyst the body measurement was reduced to 26½ inches. On the 105th day the cyst was about 2 inches deep.	Radical cure.	M. Demarquay. Gazette Médicale de Paris, 1872.
80	F	23	A dull, deeply fluctuant tumour of the right hypochondrium, raising the seventh, eighth, and ninth ribs. The measurement of the right side six inches more than that of the left. First day puncture with small-sized trocar and canula, and closing of the wound. Twelfth day puncture with a large-sized trocar, plugging of the wound with a narrow strip of lint, and the application of a poultice for the next nineteen days.	6 ounces of clear fluid was discharged by the first operation. 12 ounces of turbid fluid, deeply tinged with blood, by the second, and small hydatid cysts were discharged daily for about twelve days on removing the lint plug.	No bad effects followed the first puncture, but there was soon evidence of reaccumulation of fluid. No constitutional disturbance, no peritoneal tenderness, followed the second tapping and the means subsequently used to keep the passage of the cyst open. On the 30th day the sinus had contracted, and as the introduction of the lint gave pain and there had been no further discharge of cysts it was allowed to close spontaneously. This was effected on the 56th day. "A little difference caused by the thickening around the ribs over the liver" was still observable, but there was a difference of only 2 inches between the measurements of the right and left side.	Ditto.	Mr. Charles Brook. Lancet, vol. i. 1868, p. 162.

81	F	23	Fluctuant tumour of the epigastrium. Puncture with a fine trocar. Nearly 5½ years later puncture with a large trocar; maintenance of the opening, and injection of antiseptic and irritating fluids; complete evacuation of the contents; contraction and healing of the cyst (Sarah R., now D.).	8 ounces, clear, until towards the end, then milky from echinococci. By the second operation, thick, sweet, "laudable" pus, with glistening hydatid vesicles, containing colonies of living echinococci.	Relief followed the first operation. She left her bed 3 days, and the hospital 11 days, afterwards. After the lapse of 4½ years the tumour had reappeared, and was causing pain by its pressure. The second operation was followed by relief, and about 60 days afterwards a radical cure was virtually effected, only a sinus about 1½ inch deep remaining. This was allowed to heal very gradually.	Radical cure.	Case 1 of this paper, see p. 306.
82	M	28	Two hydatid tumours of the liver. (*a.*) The *left*:—Puncture with capillary trocar, and fourteen weeks after with a large trocar; retention of the cannula in the cyst for a week, and in the liver for about three weeks. After an interval of five years puncture with a large trocar; retention of cannula; injection of antiseptic and irritating fluids; complete evacuation of the contents of the cyst; contraction and radical cure, (*b.*) The *right* cyst:—Thirty-eight days after the last operation on the left cyst the right one was opened and treated in the same way (William C.).	8 ounces, clear, hydatid fluid; 28 ounces of odourless, straw-coloured fluid, partly clear, but chiefly thickish and turbid, like thin pus, containing living echinococci and *débris* of membranes; and 30 ounces of thick, grumous fluid, containing bile, cholesterin, and *débris* of hydatid membranes; by the three punctures of the left cyst, respectively. From the right cyst, 4 pints of turbid, fœtid fluid, with cholesterin, hydatid *débris*, and pigment crystals.	Relief without the supervention of any untoward symptoms followed all three punctures. The tumour speedily refilled after the first, and 50 days after the second there was no evidence of the presence of any remains of the tumour. This was still obvious after an interval of 4½ years, but six months later on there was an unmistakable return of the old symptoms, including fluctuation. At the time of the evacuation of the lining membranes of the left cyst, evidence of suppuration and distension of another in the right hypochondrium close to the diaphragm arose, and on the 38th day relief was afforded by letting out the putrid contents of the cyst, after which the patient made a rapid recovery.	Radical cure of both cysts.	Case 2 of this paper.

No.	Sex	Age	Situation of the tumour and treatment	Nature and quantity of the fluid withdrawn.	Progress	Result	Reference to author
83	M	10	Suppurating tumour of left hypochondriac and epigastric regions. Aspiration. Nine days afterwards, an exploratory puncture made, followed by an incision. The aspirator was again used on the 14th day, and carbolic lotion (1 in 50) injected. The cyst was tapped on the 30th day, and on the last occasion carbolic lotion was again injected. A drainage tube was passed through the cyst on the 45th day, and on the 47th the incision was enlarged, and the cavity washed out completely and the contents evacuated. The cyst was afterwards frequently injected with carbolic acid water (Alfred T. D.).	A little turbid fluid were obtained by the first aspiration; a little serum with pyoid corpuscles by the exploratory puncture; the incision gave exit to pus and blood. By the second aspiration 60 oz. of offensive pus were drawn off, and the subsequent tappings let out 38 and 24 ounces of pus respectively. Much foul pus, and the remains of hydatids (including apparently the mother sac) were liberated by the last operation.	There had been considerable pyrexia before the first operation, and there was very little amelioration until the day after the second tapping (30th) when a spontaneous discharge of about a pint of offensive pus was followed by a normal pulse and temperature. The drainage tube proved useless. From the time the external opening was freely enlarged the patient improved steadily. A fortnight later the cyst had completely shrunk. On the 75th day the sinus was still open, discharging slightly, and the patient was in good condition.	Radical cure.	Dr. C. H. Jones. Med. Times and Gazette, 1874, vol. i, p. 426.
84	F	32	Smooth, elastic, fluctuating tumour of epigastrium and both hypochondria. Liver dulness in mesial line eleven inches. Slight icterus. Puncture with a fine trocar and cannula.	60 ounces, limpid, alkaline, sp. gr. 1009. No echinococci were observed. By the second operation about a pint of thin fœtid	For 24 hours after the puncture there was some febrile disturbance. She left bed on the 7th day: On the 15th day rather severe febrile symptoms recurred (pulse 120, temp. 103·8°). Next day there was pain on deep inspiration in the region of the tumour. This was followed by a severe rigor, increased jaundice, albuminous (½) urine, retching, coarse moist sounds over lower two thirds of both lungs and enlargement of the tumour. On the 30th	Radical cure.	Murchison, Dis. of Liver, 1877. Case xxv, p. 97.

			Repetition of the operation on the 53rd day, and imposition of a piece of Vienna paste over the site of the puncture. On the 57th day incision into the eschar, puncture with a large trocar, and washing of the cyst with solution of chloride of zinc (gr. x to ℥j). On the 66th day the insertion and retention of a perforated drainage tube, and the use of solution of chloride of zinc (Hannah B.).	pus. By the third 90 ounces of fœtid pus, with numerous large shreds of hydatid membrane.	day there was a second slight rigor, but improvement followed. On the 53rd day the pain in the tumour and pyrexia were increased. These were relieved by the incision, but returned with great dyspnœa as the opening became choked up a few days after. On the 85th day enormous masses of parent cyst were discharged, and this was followed by rapid improvement. The tube was removed on the 134th day. She left the hospital a month later with the wound almost cicatrised.		
85	F	24	Tumour of the right lobe of the liver, causing bulging of the ribs. Exploratory puncture between sixth and seventh ribs in front, and two days later a free incision at the same spot; the cavity washed out with solution of chloride of zinc (gr. xx to ℥j), and a piece of elastic tube left in the opening, through which a weak solution of carbolic acid was daily injected (Miss M.).	3 drachms of pus by the exploratory puncture; 4 pints with numerous large hydatid cysts by the incision.	The severe pain from which the patient had previously suffered was at once relieved by the incision. Much pus and hydatids continued to be discharged for 20 days, when what appeared to be the parent sac escaped. After this the discharge rapidly diminished. On the 41st day the patient was in excellent health. On 61st day the tube was removed, and the opening soon after closed.	Radical cure.	Murchison, op. cit, Case xxxv, p. 118
86	F	39	Globular, elastic tumour, the size of a cocoa-nut, projecting downwards from the right lobe of liver. Puncture first with a small and then with a large trocar, retention of the cannula, and washing out of the sac from time to time. (Elizabeth R.).	Clear fluid and a number of hydatid cysts.	There was slight jaundice before the operation. This disappeared on the 4th day. On the 12th day she was weak and anæmic. On the 21st day she had great pain in the right side, fever, cough, expectoration of mucus stained with bile and consolidation of base of right lung. On the 49th day these symptoms continued, and the external opening was closed. On the 89th day the base of the right lung was clear, the expectoration had ceased, and about 5 weeks later she was able to leave the hospital.	Radical cure by rupture into and evacuation by the lungs.	Murchison, op. cit., Case xxx, p. 108

No.	Sex	Age	Situation of the tumour and treatment	Nature and quantity of the fluid withdrawn.	Progress	Result.	Reference to Author.
87	M	15	Large tumour extending below the umbilicus. Puncture with a large trocar. Repetition of the operation after six months (Daniel S.).	More than 2 gallons, yellowish-green, by the first puncture; about 1½ gallons of thicker fluid, containing pellets of some kind (doubtless hydatid vesicles), by the second.	Relief followed both operations, but 3 weeks after the second the cyst refilled and ruptured through the tender cicatrix formed in the site of the second puncture, but as no attempt was made to enlarge the opening the discharge (now pus) was insufficient to relieve the enlarging cyst. A year afterwards when he came to St. Thomas's the cyst had perforated the diaphragm, and the lung was extensively involved. A few weeks later the contents of the cyst were discharged by the mouth, and recovery was speedily effected.	Radical cure by rupture into and evacuation by the lung.	Case I. of this paper.
88	F	12	A large, fluctuating tumour in the epigastrium and right hypochondrium. Puncture with a fine trocar, and the operation repeated after a fortnight. About three weeks after tapping with a large trocar; insertion and retention of a large catheter for ten weeks (Caroline W.).	A quantity of clear fluid, containing echinococci by the first; milky fluid, containing echinococci, but no pus, by the second; and 1½ pint of pus and cysts by the third operation.	The tumour refilled after the first and second tappings. Pus and cyst continued to escape from the catheter in small quantities for some weeks. The discharge having ceased about 10 weeks after the last operation the catheter was withdrawn. Shortly afterwards pleuro-pneumonia of the right side suddenly came on, and the dulness extended over the whole of the right side. The disease ran its usual course for 3 or 4 weeks, when the cough and expectoration became less, excepting dulness, and complete absence of respiration over the front to considerably above the nipple; the lung completely recovered. As this side increased 1 inch more than the left it seemed probable that the circumscribed dulness was due to a hydatid cyst. The lung was punctured in in several parts about the centre of the dulness, but nothing escaped except a few drops of blood, and the patient afterwards complained of a good deal of pain in the side, and expectorated blood for 2 days. She was discharged about 6 months after admission.	Uncertain. Most probably the cyst extended into the base of the lung.	MacGillivray, op. cit., Case xxxvi, vol. [illegible], p. 77
89	M	49	A dull, indisdinctly, fluctuant tumour of the left	On the 1st day about 1½ pints of	The dyspnœa was relieved the 1st day, and excepting the left portion the tumour was considerably smaller. The	Death from	Dr. Blachez. L'Union Médi-

			lobe of the liver, occupying the epigastric and both hypochondriac regions, including the splenic, spreading out the lower portion of the chest wall, and descending to a line with the umbilicus. It produced great dyspnœa, but there was no jaundice. On the 1st day exploratory puncture, and after four applications of caustic (potash, and afterwards Filloz's caustic) the cyst was opened two fingers breadth below the false ribs. On the 31st day it was washed out by means of an india-rubber tube twice a day with alcoholized water, and subsequently injected with water containing $\frac{1}{20}$th part of tincture of iodine.	clear, citrine fluid depositing living echinococci were evacuated, When the opening was effected on the 21st day about 7 ounces of a brown, bilious fluid, containing gelatinous flocks, but no trace either of hydatid membranes, or of *debris* of echinococci and similar fluid continued to be discharged. On the 33rd day the discharge of hydatid membranes commenced.	effect of the prolonged application of caustic is not mentioned. The opening of the cyst was attended with great relief. All went on well until about the 55th day, when the tumour was still very obvious in the left hypochondrium, although it was considerably diminished. At this date the liquid became fœtid and the injections almost insupportable, the cavity of the cyst did not appear to retract, slight hæmorrhage occurred on two occasions, and hectic appeared. On the 82nd day the patient died of general peritonitis, which supervened suddenly, The external opening communicated by a fistulous passage the size of a finger, and between $\frac{3}{4}$ and an inch long, with the cyst which was less than the fist in size, and occupied the left lobe of the liver. It contained some spoonfuls of purulent sanies. At the posterior part of the sac there were two openings leading into a cavity half the size of the principal one formed of false membranes lying between the liver and the diaphragm. This cavity communicated on the left with the peritoneum. The spleen was compressed and small, and there was recent peritonitis. The lungs, especially the right, were covered with resisting adhesions.	rupture into the peritoneum.	cale, 3me ser., vol. vi, p. 105, 1868.
90	F	27	A round, painful tumour of the right hypochondrium. Tapping with an exploratory trocar. Repetition of the operation about seven weeks afterwards. About two months later puncture with a large trocar, insertion and retention of an elastic catheter for 6 or 7 weeks (Mary G.).	10 ounces, clear, limpid, containing echinococci by the first operation. About 10 oz. of of milky fluid by the second. A quantity of pus and collapsed small cysts by the third.	There was considerable bronchitis and hacking cough before the operation, and these symptoms were much relieved by it. The cyst refilled after the first and second operations. For the first 3 weeks after the last tapping small cysts escaped at intervals, and a little discharge of pus continued until 3 weeks before her discharge, when it ceased altogether, and the tube was withdrawn. No enlargement of the liver was perceptible, and she seemed perfectly cured. Shortly after her discharge she was attacked with dysentery and died. No post-mortem examination could be obtained.	Death whether from the effects of the hydatid disease or of some other is doubtful.	MacGillivray, op. cit., Case xix, vol. x, p. 250, and vol. xii, p. 70.

No.	Sex	Age	Situation of the tumour and treatment.	Nature and quantity of the fluid withdrawn.	Progress.	Result.	[illegible]
91	M	32	A large, fluctuating tumour of the right side of abdomen. Tapping with a fine trocar, and repetition of the operation eight days after. About sixteen months subsequently, tapping in the epigastrium with a large trocar; retention of a large catheter for some time, and occasional injection of warm water. A month after the third operation the cyst was punctured in the right hypochondrium by a large trocar, and one or two large catheters retained, and attempts to wash out the sac occasionally made (Timothy O'B.).	3 pints by the first operation; 11 pints by the second; 9 pints of brown fluid by the third; and 3 or 4 pints of similar bilious fluid by the fourth operation.	On account of pressure on the chest by the tumour the patient was unable to sleep or work. Great relief followed the first tapping. Being anxious to return to work, and declaring that "he felt no inconvenience whatever, and was as well as he had ever been," the patient was discharged 11 days after the second tapping, with a considerable fulness in the right hypochondrium. He was readmitted 16 months afterwards. The distension had gradually increased, and the respiration was very much interfered with. After the third tapping the catheter could not be reintroduced on a certain day on account of the slipping out of the little guide catheter, and the cyst was allowed to fill again. About three weeks afterwards the cyst ruptured into the lung, causing cough and fœtid expectoration. Attempts to wash out the cyst after the fourth tapping at first caused violent cough and dyspnœa. A subsequent attempt was followed by the evacuation of 15 ounces of cyst membranes. This was succeeded by great prostration, with vomiting, hiccup, and pain across the epigastric and hypochondriac regions. He gradually sank, and died 26 days after the last tapping. A large cavity containing a few shreds of lining membrane, and the remains of a thick partition occupied the centre of the liver. It communicated through a small opening in the diaphragm with the right lung, the whole of which was pneumonic, and the lower part full of pus. Behind the liver, in the lesser omentum, were two large cysts full of pus and disintegrated cysts, and the peritoneum in the neighbourhood was covered with lymph and pus.	Death from reunion of the contents of cyst and extension into the lung, and peritonitis.	[illegible] Case xvi. op. cit. vol. x. p. 249, and vol. xi. p. 40.
92	M	29	Tumour of the right hypochondrium. Puncture of this region in two places with a hollow	About 6 ounces of slightly opalescent fluid, containing pieces of hydatid	Excepting a little local urticaria and aching pain about one of the punctures no disturbance immediately followed any of the punctures, but there was some pyrexia before the insertion of the cannules, for the temperature fell for the	Death from extension of the	Dr. Bradbury. Brit. Med. Journ., 1874, vol. ii, p. 525.

			needle, and the use of an aspirator. Three days afterwards a repetition of the operation, one of the punctures being in the axillary line an inch above the last true rib. On the twelfth day two punctures were made, one in the epigastric region, and the other just behind the axillary line and above the tenth rib. On the 46th day the aspirator was again employed under chloroform, and afterwards two trocars with cannules were introduced through the hypochondrium, and a solution of carbolic acid thrown in several times during the operation. The cannules were left in the wounds, and the cyst was cleared by a feather shaft, and solution of carbolic acid thrown in from day to day. The lower tube came out of the wound on the 74th day, and was not replaced. No discharge had passed through it for some time (J. C.).	vesicles, were obtained by the operation with the aspirator. 22 ounces of clear, hydatid fluid, were liberated by the cannules on the 46th day. On the 59th day the discharge was bile stained. On the 74th day 3 or 4 pints of suppurating hydatids were spontaneously discharged.	three following days, and the girth over the tumour after this operation was $\frac{1}{2}$ inch less. On the 51st day there was great pain, and the evening temperature was 103° Fahr. A free discharge occurred from the cyst some days later, and the pyrexia declined. On the 51st day (a fortnight after the last operation) inflammation of the base of the right lung set in, and 10 days afterwards the cyst communicated with a bronchial tube, and about half a pint of yellow frothy matter, seemingly coloured with bile, was expectorated. Three days later there was profuse discharge of bile-stained fluid from the lung. No more appeared for 6 days. It then returned, and the patient died apparently suffocated in the act of expectoring it. Two contiguous cysts occupied the right lobe of the liver. The larger communicated with the external opening, and through the diaphragm with a small cavity in the adherent base of the right lung into which a small bronchus opened. The right lung generally was fairly healthy. The second cyst, which was about 3 inches in diameter, did not communicate with the former one. It was hard, and full of bile-stained *debris* of hydatid membranes.	disease into the lung.	
93	F	36	Large hydatid cyst of liver. Tapped in 1869, and several times with a fine trocar in 1873, and subsequently a large trocar was used, and the cavity washed out.	In 1869 148 ounces of fluid were drawn off. In 1873 the result of the use of the fine trocar is not mentioned, but 2 ounces of pus followed the use of the large trocar.	After the first puncture "she remained well for a time, and appeared to be cured." She again came under treatment 4 years afterwards with a swelling of the side. After the last operation with the fine trocars she had a rigor, and it was then that the large trocar was passed into the still prominent swelling. No details are given. The patient sank and died, and a hydatid cyst of the left lobe of the liver, capable and containing 2 pints, had perforated the diaphragm and right pleural sac.	Death from extension of the disease into the pleural sac.	Dr. Greenhow. Lancet, ii, 1873, p. 704.

No.	Sex	Age	Situation of the tumour and treatment	Nature and quantity of the fluid withdrawn	Progress	Result	Reference to Author
94	F	39	Large hydatid tumour of the right lobe of liver, extending into the right pleura. Puncture and aspiration. Ten days afterwards puncture with a large trocar, withdrawal of the cannula, incision and insertion of the dressing forceps into the free opening. Subsequently the wound was kept freely open (Ellen M.).	Only 1 ounce of glairy, gelatinous fluid was obtained by the aspirator. The fluid was found to be too gelatinous to pass through the tube attached to the large trocar. About 3 ounces of glairy fluid, and a thick walled hydatid cyst were discharged through the incised opening in the side.	Two days after the aspiration the patient was greatly collapsed, and there was pain on the right side; during the next four days there were signs of severe peritonitis. On the 5th and 7th days she had severe rigors, followed on the last occasion by icterus and hectic. The jaundice and pain in the tumour increased. After the second operation the patient "did fairly well for some time." On the 16th day there was a large discharge of hydatids of all sizes with gelatinous fluid and pus, and during the next fortnight cyst *débris* came away on eight or nine occasions. On the 27th day there was pneumonia of the base of the right lung. This increased, and the patient died on the 38th day. There were several discharges of cysts during the last 10 days.	Death from extension into the pleura before treatment.	Dr. Andrews, Lancet, ii, 1875, p. 769.
95	F	30	A round, smooth, fluctuating tumour of the epigastrium. Puncture with a fine trocar, and immediately afterwards with a full sized one. 2 per cent. solution of carbolic acid was injected into the cyst, and a large tube tied in the wound. During the following ten days several pints of carbolic acid lotion were injected thrice a day through an elastic catheter passed into the cavity (Mrs. C.).	About 6 ounces of bilious, fœtid, purulent fluid, containing cholestrin, but no trace of echinococci passed by the fine trocar, and only 8 ounces more with several hydatid vesicles by the larger one. Whenever the cyst was injected large hydatid vesicles with fœtid, purulent fluid, containing green bile, came away.	Jaundice appeared 14 days before the tapping. It was preceded by acute pain, and soon followed by fever. There was intense jaundice and impending pneumonia at the time of the operation. While the treatment was being pursued the abdomen returned almost to its natural dimensions, and the jaundice in a great measure disappeared, but bile was still absent from the fæces. Aphthæ of the mouth appeared on the 4th day, rigors and high fever on the 5th, followed by prostration, and death on 11th day. The left lobe of the liver was occupied by an enormous cyst, containing 2 pints of very fœtid, thick, green fluid, mixed with large fragments of the parent cyst. The cavity communicated with the common bile-duct, which was obstructed by and distended with hydatid vesicles to the duodenal orifice. There was recent pneumonia, at some places passing into grey hepatisation, in both lungs.	Death from pneumonia and retention of the fœtid cyst contents.	Murchison, Dis. of Liver, 1877, p. 112.

96	F	21	Multiple hydatid cysts of the liver and peritoneum. Aspiration of the largest swelling, the needle introduced three inches below ensiform cartilage, and half an inch to right of mesial line. On the 23rd day the aspirator was again used, but as the cannula became blocked a free opening was made, and a large perforated drainage tube fixed in the opening (Mary H.).	3 pints, clear, alkaline, sp. gr. 1010, without hooklets, by the first aspiration; by the second 2 pints of opaque, yellowish fluid; and 9 pints more by the incision.	On the 2nd day pyrexia, which increased (temperature 99° to 104°) and continued for the next three weeks. On the 23rd day the body girth was 4 inches more than it was before the first operation. The sac was not emptied by the last operation, from which the patient did not rally, and she died 48 hours afterwards. There was no peritonitis; the external opening communicated with two large cysts in the liver, one of which was intensely inflamed. The lungs were encroached upon, and the lower parts, especially of the right, were collapsed.	Death.	Murchison. Dis. of Liver, Case 27, p. 100.
97	M	17	Double pleurisy with effusion into the pleura, great enlargement of the liver. Fluctuation soon observed in the right hypochondrium. On the 12th day fluctuation more distinct, and tumour tending to point, Puncture with a small hypodermic syringe, and then with a larger trocar, and the cannula retained and plugged. On the 15th day incision into the tumour. Injection of carbolic acid water (1 to 100).	8 ounces of pus and small cysts were discharged by the first operation. 10 ounces of offensive pus and cysts by the incision, immediately, and next day 50 ounces more.	Relief followed by evacuations from the cyst, but even after the discharge on the 16th day the cyst still contained more of the offensive pus. During the next 6 days 56 ounces more were liberated, but at this time the breathing became more embarrassed, and the pulse rose to 140, and the patient sank on the 55th day after his admission, and 43 after the first operation. The liver was generally adherent to the front of the abdominal wall, to the diaphragm and the right kidney, and encroached on the right pleural cavity. The right lobe was almost entirely converted into a suppurating cyst, composed of thin discoloured liver tissue, from ¼ to ⅛ of an inch thick, excepting below, where there was a considerable thickness of liver tissue. This cavity contained several pints of pus and hydatid cysts. Both lungs were congested and adherent to the pleural walls by recent adhesions, and there wss effusion into the pleural sacs.	Death from previous pleurisy, and subsequent retention of the cyst contents.	Dr. Sieveking. Lancet, i, 1869, p. 637.
96	M	9	A large, fluctuating tumour of the right side, extending below the umbilicus. Tapping with a fine trocar. Repetition of the operation about three weeks afterwards. Forty-six days later tapping with a large trocar; insertion and retention of a large catheter (Charles B.).	3 or 4 pints of bilious - looking fluid, free from pus and echinococci by the first; a large quantity of similar fluid by the second; 50 ounces of stinking pus by the third operation.	There was much tenderness, and interference with the breathing before the first operation. The tumour refilled. After the second tapping an elastic catheter was inserted, but slipped out almost immediately, and owing to the retraction of the cyst could not be reintroduced. Before the third operation there was hectic and dyspnœa, the tumour projected much more in the epigastrium, which was very prominent and tympanitic. Great temporary relief followed the last operation, but he gradually sank and died 5 days afterwards. There was a single cyst of the liver, the walls of which and adjacent parts of the liver were in a state of gangrene.	Death from retention of putrid discharge.	MacGillivray, op. cit., Case 23, vol. xii, p. 71.

ON THE
CLASSIFICATION OF MEDICINES,
AND ESPECIALLY OF
GENERAL REMEDIES.

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ASSISTANT PHYSICIAN TO THE HOSPITAL.

It will probably be generally admitted that while some classification of therapeutical agents is absolutely necessary, to find a good classification is a matter of extreme difficulty. This difficulty is, in fact, inherent in the nature of the case; for while classification must always depend upon the selection of of some one character in respect of which the objects to be classified can be compared, there is not, in fact, any one character which can serve this purpose for the multifarious objects which are used as therapeutical agents. Not that it has been found difficult to form systems of some kind; it is the utility only of such as have been framed, that can be called in question.

A very large number of classifications which have been actually adopted, are enumerated in the well-known work of Pereira. They vary in complexity from simple *alphabetical* arrangement to others resting on the most abstruse metaphysical conceptions of nature and life. All such classifications, however, fall under two general heads. Either they are natural history classifications of drugs, or else attempts to arrange medicines according to their uses. Of all the natural history systems it is impossible not to admit that they are essentially transitory and provisional. They can only be tolerated so long as Therapeutics is confounded with Pharmacology, or rather, we may say, more precisely while it is entangled with Materia Medica (the separation of these widely differing departments of medical education is, we may remark in passing, a reform urgently needed, not only on the ground of practical convenience, but still more, in the interests of scientific clearness). It is impossible to doubt that in the end, therapeutical considerations must prevail, and that hereafter no one will think of arranging medicinal substances or agents, otherwise than according to their healing properties, actions, or uses.

The attempt to construct a therapeutical classification has, of course, been made in all text-books. The well-known work of Garrod contains a very elaborate system, and one of the most reasonable is furnished by Dr. Wood in his treatise on therapeutics. It is undeniable that, as Dr. Wood points out, any physiological classification can be perfect; but that appears an insufficient reason for so high a degree of inconsistency as is found in many such systems.

The inconsistences and difficulties of a physiological arrangement of drugs appear to depend upon the following causes: Imperfect knowledge of the effects of drugs; confusion between theoretical and practical definitions, and varying or uncertain application of terms.

With regard to the imperfection of our knowledge; this must be admitted only too readily. But it is evident that no classification can pretend to do more than represent the state of knowledge at a particular time, and such an objection as this would never, at any period of science, be without validity.

Greater, but more remediable confusion arises from the failure to distinguish between theoretical and practical bases of classification; between the actual effects of drugs, and the purpose for which they are used. We often hear of drugs which act on the nervous system, drugs which act on the circulatory system and so on; but a very little consideration will show how inconsistent and untenable such distinctions are. There is probably not a single remedy which acts on one part of the body only, though it is perfectly reasonable to say that a drug is used for its effect upon a particular organ, and to found upon this a practical classification. It is pretty certain that most of those drugs whose action is best known, do really act (when once absorbed) on several, if not all, systems, though the action on one system may be more conspicuous than on the rest, or else more speedy, or else may happen to be that which we require, so that all the other actions may be practically disregarded. This is noticeably the case with the drugs which we call *neurotics.* It is impossible to doubt that most, if not all of these act upon the whole body. Their action on the nervous system is peculiar, probably from the special constitution of the nerve elements themselves. It is difficult to say what part of the body is not affected by a large dose of opium. The action of this remedy on secretion is too obvious to need mention, and this property fails to be of more therapeutical importance only on account of a practical difficulty, viz. that the effect produced on the nervous system outruns that on the secreting system and intestinal canal. Were the nervous system less sensitive and the secreting cells more so, opium might be classed among remedies acting on the intestinal canal. It may possibly be true, as is often assumed, that these actions of opium on the secreting system take place through the nervous system, but this connection is certainly not yet established beyond a doubt. On the other hand, medicines which are generally placed in an entirely different category to the neurotics, have also neurotic properties. Narcotic symptoms almost invariably occur in the later stages of poisoning by antimony and by arsenic. In some exceptional cases such symptoms are present and even predominant from the first.

So that on the one hand it would appear that neurotics are drugs *general in their action,* which affect the nervous system most conspicuously on account of the special properties of that tissue (probably the greater irritability of its protoplasm). On the other hand, it is possible that all general remedies might be neurotics under certain conditions of absorption and non-elimination, which would bring them in immediate contact with the elements of the nervous system, and especially with the nerve-centres.

These propositions are not submitted as being demonstrated, or even as being in the present state of science, susceptible of demonstration, but because they seem to contain enough truth to be worthy of examination, or at all events, because they lead to a consideration of the question, what is actually meant by a general or a local remedy?

The practical result as regards our immediate purpose of classification is this, that general remedies are defined by their properties and actions, local (or organic) remedies by their uses. Astringents, for instance, form a class of general remedies, and are defined by the general property of astringency. Cardiac remedies, on the other hand, form a class of organic remedies, including all drugs that are conveniently used for the sake of their action on the heart, whatever other organs they may affect, and whatever general properties they may possess. It will follow from this that many remedies must be both general and local; and indeed, if our knowledge were quite complete, even almost every drug capable of being absorbed might be defined both according to its general and its organic action.

It is also worthy of remark that while the division of remedies into general and local (or organic) occurs in all the classifications, the word *general* is not always used in the same sense. Usually it means remedies which act on the body as a whole; but is sometimes used (by Dr. Wood for instance) in a sense not defined, but evidently different from that just mentioned, since the class includes *astringents* on the one hand, and remedies which are specially cardiac on the other. In other words, *general* may be used as synonymous with *constitutional* remedies, or it may be used to mean remedies which have an identical or at least similar action on different parts, so that they are *generally* applicable to all parts of the body.

General remedies in the former (constitutional) sense are also known as blood medicines or blood tonics, from the assumption that the general or constitutional state must be a state of the blood. The action of general remedies in the latter sense has been little studied in itself, and hardly, or not at all, in relation to the question of their internal action. They have been regarded merely as local or even as external remedies. In fact the double use of the word expresses a truth, viz. that there are really two classes of general remedies, those which are used constitutionally, and those which are used locally. It is by no means impossible that in some cases the local and constitutional action are the same, and the utility when used constitutionally may depend upon the local action being universally operative. This cannot be assumed without positive evidence in each case, but still it is important to remember that there is, in the case of such remedies, one kind of action which is exerted upon all living tissues alike, though in different degrees of intensity. If this be the case there is no reason to doubt that the action on any internal part will be the same as on the external, provided the remedy actually comes in contact with the part in adequate amount and degree of concentration. But that any remedy actually reaches any particular part of the body, and reaches it in any special degree of concentration, must be in all cases a matter of evidence. If we assume it without proof, we fall into the traditional error of medicine which Shakespeare has put into the mouth of the courtier whose "bald unjointed chat" moved the scorn of Harry Hotspur—

> "And telling me, the sovereign'st thing on earth
> Was parmaceti for an inward bruise."

But since the object of the present remarks is classification, not speculation, these questions may be left for the present, though some will recur again in considering the different classes of remedies.

General and Local Remedies.

Before considering the physiological action of medicines it is well to recall the very rational distinction pointed out by Dr. Wood in his classification of remedies between those which are merely used to act on something in or on the body, as anthelmintics, antacids, parasiticides, and disinfectants, and those which act upon the body itself. Putting the former on one side, the rest or *systemic* remedies fall, as already explained, under the two heads of general and special.

1. *General remedies.*—The effects of these remedies, whether applied locally or taken to produce a constitutional effect, must depend upon some definite reaction between the drug and the tissue, and, generally speaking, on the same reaction being produced everywhere. It is clear that this is also true of the action of physical agents such as heat and cold, the effect of which must be the same essentially upon all tissues, and varies only accord-

ing to the endowments of each tissue. The action of each general, remedy moreover, is comparable with that of some physical agent or normal influence affecting the body. It is by reference to the action of these agents that the action of such remedies can be explained. The therapeutical use of these remedies is an attempt to imitate the operation of the natural agent. Thus, general remedies group themselves round one of the natural agents, which may be taken as the type, and, to some extent, as the definition of each group.

General remedies may be divided into the constitutional and the local, or, more strictly speaking, those which are used constitutionally and those which are used locally.

General remedies used for their constitutional effect form three groups:—1. *Nutrients.* 2. *Tonics.* 3. *Alteratives.*

Class I.—*Nutrients* are remedies used to improve the nutrition of the body, and which effect this by supplying some constituent of the body which is deficient. They are, in fact, *special kinds of food*, and conform to the physiological type of food in general, their administration being an attempt to imitate by art, and in diseased conditions the instinctive selection of the natural appetite. The number of special kinds of food is practically unlimited, and it is rather from caprice than deliberate selection that the following have been admitted into the Pharmacopœia:

1. *Saccharina*; as saccharum lactis, glycerine, manna.
2. *Amylacea*; as arrowroot.
3. *Mucilaginosa*; as cetraria.
4. *Glutinosa*; as isinglass.
5. *Albuminosa*; as eggs, milk.
6. *Oleosa*; as oleum morrhuæ, ol. olivæ, ol. amygdalæ.
7. *Minerals*; as iron-salts, lime-salts, alkalies, phosphorus, sulphur.
8. *Water.*

Of these, it must further be noted that many are introduced into the Pharmacopœia for other objects than nutrition, and it is only accessorily that they serve as food. With regard to mineral foods, it is surprising, on the one hand, how indispensable a certain quantity of them appears to be, and, on the other hand, how unable we are to define the necessary quantity.

The marvellous efficacy of iron, however, in treating cachectic conditions among civilised, and especially urban populations, is, doubtless, to be explained by the deficiency of this element in our ordinary diet. We have almost entirely given up eating the blood of food-animals, which must be the chief source of iron to the carnivora, and culinary cleanliness ever more and more carefully removes the accidental contaminations of the soil which supply these and other mineral foods to herbivorous animals. Again, alkaline salts, especially sodium chloride, form in all countries a part of man's diet, but we do not yet know either what amount constitutes excess nor what deficiency, nor what are the consequences of either error. If our knowledge were more complete, perhaps the Pharmacopœia would recognise chloride of sodium as a medicine.

Class II.—*Tonics.*—To define a tonic would seem to be extremely difficult. All attempts hitherto have ended in describing a tonic as that which produces *tone,* while this word itself still wants a definition. It is clear that, except in the sense of muscular *tonus* or the elasticity of connective tissue, no precise meaning attaches to the word tone. But if we notice the way in which the profession uses the word, we see that what is meant by tone is merely strength or vigour, the opposite of languor, debility, and cachexia. It is plain, too, that the result which it is sought to attain by tonics is the same as is sought to be attained by giving food, viz. to remedy some failure of nutrition. Finally, it appears to me impossible to accept any other definition of a *tonic* than this—*a substance which, though not a food, produces the effect of food.* Further consideration shows that the result may be attained in one of two ways: either by directly improving the nutrition, as is done by "analeptic" or *constructive* tonics, or, again, by checking waste and thus economizing food, as is the case with what may be called the *conservative* tonics. The first class is represented by iron, perhaps quinine, and many substances already classed among foods; the latter by coca, tea, alcohol, and possibly quinine.

If we ask what is the physiological type of tonics, the answer must be that the administration of such drugs is an attempt to imitate the results which nature produces by healthy surroundings generally—physical, mental and moral—and especially by a variation of these circumstances. We do for one class of patients by change of climate what we attempt to do for another class by iron and quinine. In the same way moral influences are known to modify the need for food in a way which we try to imitate by the administration of conservative tonics. Prolonged fasting under the influence of religious emotions or of hysterical delusions, the absence of desire for or want of food in intense mental excitement, the inspiriting effects of victory or expected victory on a half-starved army—all these instances show that a distinct economy of food may be effected by moral causes acting through the nervous system. Paradoxical as it may seem, this is also precisely the effect of tea, coffee, alcohol, and other tonics. Of these, coca appears to be likely to prove in the end one of the most valuable. The few therapeutical results which I have obtained by its use seem to show that it may be very useful in the obscure cachectic conditions so common in all classes of our population.

Tonics may be divided into the following groups—

1. *Mineral tonics;* iron, phosphorus, arsenic, and probably some other metals.

2. *Cinchona bark* and its derivatives.

3. *Conservative* tonics; alcohol, theine, coca.

[4. *Digestive* tonics; acids, bitters, aromatics, &c.].

[5. *Vascular* tonics; all drugs which increase the force of the circulation].

The first group are evidently partly foods, but that even iron does not act simply as a food is shown by two facts: first, that beneficial results follow the administration of very large doses which are not absorbed, and, secondly, that arsenic, which is certainly not a food, produces in some cases of anæmia similar, if not identical, effects. The position of the highly anomalous drug cinchona must be regarded as wholly tentative. Its physiological action is, in spite of numerous researches, very imperfectly understood, and to no drug is it more difficult to find a parallel. Some, no doubt, even of the third group, are really foods, as it appears impossible altogether to deny this character to alcohol. The two last groups come more conveniently under local remedies as being used to influence particular organs, but they still answer to the definition of tonics. This is universally admitted of digestives, but with regard to vascular tonics, it is too often forgotten that feeble circulation is not only a consequence, but distinctly a cause, of imperfect nutrition.

Class III.—*Alteratives*—An apology is necessary for the introduction of this term, to which, as a comparison of the definitions attempted by different authors will show, no distinct meaning can be attached. The name is here used to signify a residual group of general remedies which are not precisely either nutrients or tonics.

The general changes which such remedies cause are very various, and the action of one group only admits of being stated with precision. It is that which is a chief function of water in the organism, viz. the removal of waste products and the promotion of chemical change in the body. It is pretty clear that this is the chief effect of the "water cure;" and it seems also made out that those who drink water excessively, not only can take, but actually require, unusually large quantities of food. If, as appears to be the case, the process favours the reception of fresh nourishment the process may in the end be one of increased nutrition, but is certainly not so directly, since most of these chemical changes in the body are either oxidations, or breaking up of complex into simpler molecules, which is equivalent to oxidation. The physiological action of water may be spoken of broadly as aiding in the oxidizing function of the body, chiefly as regards food products in the blood and tissues, partly perhaps as regards the tissues themselves. Alkalies have, it seems clear, the same physiological effect, that is, they favour oxidation and chemical metamorphoses. This is their well known chemical action on organic substances out of the body, both in a state of fusion and also in solution; while numerous facts, which cannot now be quoted, show that this is their chief physiological action when absorbed into the blood.

Water and the alkalies, then, form one class of alteratives as favouring chemical change, and especially oxidation. With regard to all the other substances called alteratives (omitting vegetable alteratives as being of most problematical efficacy), the only fact common to the class appears to be that they are all poisons, that is, capable of destroying life in large doses, and producing cachexia when taken in small repeated doses. Some, no doubt, have a valuable effect on special organs, and may in this way, by setting aside conditions which hinder nutrition, produce an actually tonic effect. But in general their unavoidable tendency is to impair nutrition, and possibly this may be what in some cases renders them useful. When mercury, for instance, lowers the nutrition of every tissue in the body, it impairs more especially the nutrition of certain parts which are badly nourished already, such as the products of syphilis and of chronic inflammation. The action of such a drug is, in fact, poisoning, carried only so far as to kill the new and morbid tissue, not the normal and healthy. We also see why mercurials and the like are generally injurious in diseases where the element of necrosis predominates, as in tubercular affections. If in pulmonary phthisis we may sometimes follow Stokes in administering small alterative doses of mercury, this is in virtue of the large share which chronic inflammation has in all phthisical processes, and even such a treatment as this cannot be pursued long. The general effect of this class of alteratives being to impair nutrition, they are thus the opposite of tonics.

The two main divisions of alteratives are then (1) Oxidising agents (2) Poisons. The table at the end shows what groups of remedies come under each of these divisions.

It is also clear that there can be no physiological type except for the former class, which imitate the effects of oxidation produced by abundant respiration and exercise.

General Remedies used Locally.

It was pointed out above that these remedies, justly called general, have either been neglected by systematic writers, or else have been regarded as peculiarly local. In one sense indeed, they may be called *local remedies of universal application*, since, while their action on animal tissues is one special to each drug or group of drugs, it will be generally speaking the same on all tissues. Their action is best known and studied in external or, at least, accessible parts. It is only with regard to some of them, and only by indirect means, that we can give any information as to their action on remote or inaccessible parts. The internal action of most of these drugs has been very little studied and appears insignificant chiefly on account of the difficulties of absorption, and the consequent disproportion between the dose present at the part of the body where the drug is applied and in any remote part to which it is carried by the blood.

General local remedies form five classes—(1) Stimulants, (2) Astringents, (3) Destructives, (4) Protectives, and a less clearly defined one, (5) Emollients. I must also express a strong belief, though at present resting on insufficient facts, that narcotics and sedatives ought also to form a class of general remedies acting locally.

Stimulants and Irritants.

We are here, of course, speaking of local stimulants or irritants. These are drugs which are thought to have a twofold action on parts to which they are applied. They stimulate the life of the part, invigorate its vital actions, and in the second place they attract more blood into the vessels. Since these are the physiological effects of warmth (or heat within vital limits), heat may be taken as the physiological type of stimulants. Whatever reproduces the physiological action of heat is a stimulant. It has been urged, especially by Virchow, that one of the modes of action just mentioned is dependent on the other—that hyperæmia is a consequence of a physiological stimulus to the elements of the part. But though this may doubtless be the case in vegetable life, where the flow of the sap follows the growth of tissue-elements, vegetative stimulus must have a very limited application in the human frame. Hyperæmia cannot depend on this in any large degree, but results from direct action on the vessels, the walls of which becoming paralysed dilate and permit afflux of blood. It seems made out that usually, at least, a reflex nervous action is necessary to hyperæmia. The special action of pure stimulants is to cause hyperæmia alone, without inflammation, the vessels being merely relaxed, not injured; but if the action be severe enough to injure the vascular wall, then follow exudation, stasis, cell migration, and all the phenomena of inflammation. When this is produced at once, we call the agent an irritant. Permanence is the chief criterion of inflammatory as distinguished from simple hyperæmia, and hence it is probable, as Cohnheim points out, that the redness of the skin produced by "rubefacients" and the class of "cutaneous hyperæmiæ" recognised by dermatologists are really inflammations, though of a low type. Transitory, *i.e.* pure hyperæmia, is produced by gentle warmth, or, in some states of the vessels, by simple pressure, besides being also a reflex or direct nervous phenomenon.

Can superficial stimulants, when absorbed, produce their characteristic effects in distant parts of the body? This question cannot be answered universally, but it is clear that such is the case with some external stimulants or irritants. Cantharides, when applied to the skin, is not usually absorbed into the blood in quantity sufficient to supply an irritating degree of concentration; but when it becomes concentrated from the blood into the kidneys effects are produced similar to those seen at the original point of application. That diffusible stimulants, such as ammonia (*i. e.* those which are readily absorbed), act on the nervous system, is a familiar observation, and it even seems as if a certain analogy could be traced between the different stages in the action of some of them—alcohol, for instance—on external parts and on the nerve centres—producing, first, irritation, as on the mucous surfaces and even on the insensitive skin, and secondly, by numbness of sensation and hardening of the tissue. To these stages the successive stages of exaltation and depression of function in the cerebral nerve-centres seem to correspond.

Aromatics seem to be a peculiar class of stimulants, often scarcely powerful enough to affect the skin, and only imperfectly the mucous membranes, but which readily affect the nervous centres, if by their diffusibility they arrive there; while the fact that they so readily appear in the expired air and other excretions shows that they must pass into the blood, and do therefore reach the nervous system.

The chief practical use, however, of all stimulants is counter-irritation, that is to say, the beneficial effects, whatever they may be occasioned in one part by producing hyperæmia of, and stimulating the superficial nerves in, another part. Chronic inflammations also are treated by stimulation (as acute are by the converse).

The chief groups of stimulants and irritants are—(1) *Rube-*

facients, which produce physiological hyperæmia, or only a low degree of inflammation; (2) *Vesicants,* which *blister, i.e.* produce rapid exudation of an inflammatory kind; (3) *Pustulants,* producing pustules, for which absorption is absolutely necessary, this process being far from a mere extension of either of the former, but an inflammation of the cutaneous glands by poisons received into their substance. This is shown also by the fact that tartar emetic taken internally has produced a similar pustular eruption on the skin. To make the enumeration of the pathological reactions of the skin more complete we should have also *vesiculants,* or drugs which produce eczema, as mustard, linseed (on some skins), aniline dyes, and numberless other substances, but these have no therapeutical importance, except as a severer form of rubefacients. We might also distinguish *papulants* which produce papules by absorption, as in tar-acne, this being a milder degree of the same process which is seen in pustulation.

Finally, for reasons already given, I should place aromatics and antispasmodics here, though I know no precedent for such a classification. It may be noted that aromatics are used for relieving *spasm* of internal parts, such as colic of the intestines, local spasm of neuralgia, &c., and probably their efficacy in hysteria depends on relaxing spasmodic conditions of the cerebral blood-vessels which cause local anæmia. Now this action, *i. e.* relaxation of muscular walls of arteries, is precisely what we see in cutaneous vessels as the effect of heat or other rubefacients. Moreover, just as "stimulating" applications will often heal a chronic sluggish inflammation (blue stone to the conjunctiva, liquor potassæ to the skin in chronic eczema), so do aromatics, when excreted, act on chronic inflammations of the mucous passages, as the bronchial tubes or urethra (copaiba, aniseed, and buchu).

Astringents.

As stimulants are defined by the analogy of heat, so are astringents by that of cold. They cause contraction of living tissues; they diminish the calibre of the vessels, and thus limit the afflux of blood; they lower the activity of cell life, diminish secretion, and have a sedative effect on the nerves; all effects which are produced by cold. Astringents produce a more definite effect on the tissue-elements, since they harden their substance, sometimes by withdrawing water from them, and it may be in such a degree as to destroy their vitality. For obvious reasons astringents are our chief hæmostatics; they are also the chief instruments for the treatment of acute inflammation in accessible parts.

It is by no means impossible for astringents to be absorbed and produce their characteristic effect on remote parts; nevertheless, it is seldom that after absorption they arrive at any internal organ in a sufficiently concentrated form. Hence the efficacy of tannin compounds in pulmonary hæmorrhage is a matter of some doubt. It is a remarkable fact that in nearly all cases astringent properties are a question of degree, and that in a higher degree of concentration most astringents are stimulant, irritant or corrosive.

The chief groups of astringents are:

1. *Dilute acids*, all of which, in concentrated form, are irritant and corrosive. The mineral acids appear to be more irritant in proportion as they are more diffusible. Sulphuric acid is less so, in a corresponding degree of dilution, than nitric or hydrochloric, and it is less diffusible. Hence it is preferred as an astringent, but the difference is probably slight.

2. *The tannin group.* The astringent powers of tannic acid, its derivatives, and allies and drugs containing it, evidently depend upon a chemical reaction with albumen. Tannic acid has so little diffusive power that it cannot act on remote parts; and even the utility of the administration of gallic acid is open to much question.

3. Certain salts of the heavy metals, especially those of *lead*, *zinc*, *silver*, *iron*, *alumina*. It is probable that all salts of metals above the alkalies and alkaline earths are astringent, irritant, or corrosive, merely depending as a question of degree on the amount of concentration and diffusibility; chlorides and nitrates are more diffusible than sulphates and salts of organic acids, and the former are also more irritating, and less astringent. Chloride of zinc, for instance, is the most powerful kind of irritant, an actual caustic, but Dr. Ringer shows, by appeal to experience, that when sufficiently diluted it has a curative effect on inflammation, greater even than that of the other zinc salts. These salts furnish the most certain and direct means of treating an

inflammation in parts actually accessible to their action. It is hardly too much to say that inflammation cannot go on in any tissues the elements of which are actually bathed in lead or zinc salts of a proper degree of concentration. The greater part of cutaneous therapeutics rests upon this principle so far as inflammatory conditions of the skin are concerned. The only difficulty of applying this generalization universally is that, even in an inflamed membrane so thin, as, *e.g.* the conjunctiva of the eye, it is impossible to be sure that the whole thickness is penetrated by the metallic solution.

The importance of this fact in relation to the treatment of inflammation seems to me to have been most imperfectly appreciated by surgeons. Mr. Hutchinson, indeed, a few years ago stated the principle in the broadest possible manner, and recommended soaking injured or inflamed parts in lead lotion as an infallible means of preventing or arresting inflammatory action. It would be presumptuous in one who is not a surgeon to express any opinion on the propriety of this method of treating injuries, but I feel bound to say that, from the action of lead on superficial inflammation of the skin and mucous membranes, I can most readily accept Mr. Hutchinson's conclusions, which seem to have received very inadequate attention either in the way of confirmation or of criticism.

The antiphlogistic action of lead salts may be taken as a type of that of the heavy metallic salts generally, in which a gradual transition may be traced from the soluble chlorides, which are locally corrosive and constitutionally poisonous, to such nearly inert substances as salts of bismuth, which are local astringents, but have no irritating, and from their slight capability of being absorbed, scarcely any constitutional effect.

It is very striking that the antiphlogistic powers which Mr. Hutchinson attributes to lead have been universally recognised as belonging to *cold*. The treatment of inflammation is, for some surgeons, almost exclusively a treatment by cold (Simon's art. "Inflammation," in 'Holmes's System'), but they have failed to see that the traditional treatment of bruises by lead-lotion involves precisely the same principles. It would seem, then, not unreasonable to take the treatment of inflammation, which we can actually reach and cure, as a model for the treatment of those which are less accessible and less amenable to treatment; and if so, research should be directed toward the best method of bringing home to inflammations of internal parts the same astringent action which we apply externally. This appears to me the most hopeful line of research in the treatment of inflammation generally.

Destructives.

This class of general remedies needs little definition. It includes those substances which affect living tissues in the same way as they act upon dead organic matter—by actually destroying it, and producing an effect precisely comparable to that of heat in an intense form, such as the actual cautery. All these substances in the dilute form are simple irritants, and most of them, still more diluted, are astringents. Their chief therapeutical use is in the treatment of new growths, or in eradicating an unhealthy form of inflammation and substituting an acute inflammatory reaction.

The class includes (1) concentrated acids (2), certain metallic salts, especially nitrates and soluble chlorides of heavy metals, (3) caustic alkalies.

Their physiological type is the actual cautery or ardent heat.

Protectives.

This term naturally applies only to external parts. In all cutaneous inflammations there are two elements concerned; the primary inflammation, however produced and the secondary, set up when the epidermis is removed by the irritating action of the air on the deeper parts, which are thus exposed to an unaccustomed stimulus. The secondary inflammation may be entirely prevented by substituting for the detached epidermis an artificial covering.

This is the *rationale* of painting herpes zoster with collodion, a method of treatment which, in my experience, never fails to prevent the setting in of the secondary inflammation which follows rupture of the vesicles, and thus averts all the more serious consequences sometimes seen.

Again, some inflammations of the skin are set up by external irritation, as of sun, wind, &c., applied to the unbroken epidermis. These we may equally guard against by protectives, using such appliances as glycerine and fat, which either by themselves form a layer of non-conducting material or else convert the horny epidermis into such a layer. Such a remedy being, in fact, an artificial skin, its physiological type is the skin itself.

Emollients and Demulcents.

These are remedies used chiefly in local treatment of inflammation. It may be thought that the conception of emollient remedies is an exploded one, and that no precise meaning can attach to such a name. Nevertheless both theory and experience show us that if the substance of inflamed tissues be relaxed, the blood-vessels dilated, the sense of tension and of nervous irritation removed, much will be done to relieve that especial feature of inflammation called stasis. The application of hot or tepid poultices and fomentations is our usual means of effecting this result. It is true that rigorous partisans of the frigorific treatment of inflammation have rejected, or at least scorned, all hot applications, but poultices still hold their ground in practice, even if it has been thought difficult to justify their employment by theory. It may be true that heat by itself would foster rather than check inflammation, but the effects above described are beneficial obviously before suppuration has taken place, and even when there is suppuration, the same influences are useful in guiding the pus in the direction where it is least hurtful. On these grounds the use of warm and moist applications has both a theoretical and practical justification.

Besides simple warmth and moisture there are substances which have an auxiliary emollient action, namely, mucilaginous substances, fats, and glycerine. The action of mucilaginous substances, as linseed, is not easy to define, but it seems to be simply that of rendering the skin more supple. Fats have this action, and also, it would seem, another, that of aiding the lymphatic circulation. There is much probability that one of the benefits resulting from the internal administration of cod liver oil is to stimulate the circulation in the lacteals, and some such explanation is required to account for the undoubted efficacy of superficial inunction in relieving deep-seated inflammation. We are apt to think it an old wives' fable that nasal or bronchial catarrh is relieved by rubbing fat into the skin, but experience is not so lightly set aside, and, unless there should be some obscure reflex nervous action, which is very unlikely, this must be by some effect on the lymphatic and plasmatic channels. (The same result perhaps follows cutaneous irritation, and beneficial results of counter irritation may thus be explained, even when the amount of blood stream diverted is inconsiderable).

The physiological type of emollients is given by what is commonly, though absurdly, called "moist heat;" that is, the combined effect of heat and moisture.

Conclusion.

The foregoing discussion is designed to clear the way for more precise conceptions of what is meant by general remedies, and to lead to a more accurate use of terms. It is hoped that ultimately the same principle of physiological reaction may be applied to organic or special remedies; but for this the facts are at present quite inadequate.

For the sake of clearness I have arranged the classification and definitions in a summary form, as follows :—

A CLASSIFICATION OF MEDICINES.

The primary division is into—

A. Remedies acting upon the body itself.
B. Remedies acting only upon something in or upon the body.

A. Remedies acting upon the Body itself.

These are either (α) General, or (β) Organic.

α. GENERAL REMEDIES.

N.B.—Most general remedies agree in effect with some natural agent, which may be called their *physiological type.* They are used either for their constitutional or for their local effect.

α. α. GENERAL REMEDIES USED CONSTITUTIONALLY.

Definition.—Given for the sake of their effect on the whole body, and only efficacious when absorbed into the blood.

CLASS I.—Nutrients.

Definition.—Special kinds of food, which supply special constituents of the body.

Physiological Type.—Food in general.

N.B.—Some foods have other special properties.

1. Saccharina, as saccharum lactis, glycerine, manna.
2. Amylacea, as arrowroot.
3. Mucilaginosa, as cetraria.
4. Glutinosa, isinglass.
5. Albuminosa, as eggs, milk.
6. Oleosa, as oleum morrhuæ, oleum olivæ, oleum amygdalæ.
7. Minerals, as iron salts, lime salts, alkalies, phosphorus sulphur.
8. Water.

CLASS II.—Tonics.

Definition.—Substances which, though not foods, produce the effect of food, in improving the nutrition of the body.

Physiological Type.—Healthy surroundings, *e. g.*, fresh air, light, change of climate, mental and moral stimulus.

N.B.—Some tonics are probably really foods.

1. Mineral tonics, as iron, phosphorus, arsenic, and possibly some other metals.
2. Cinchona bark and its derivatives.
3. Alcohol ?, theine ?, coca ?

[4. Digestive tonics, as acids, bitters, aromatics, which strictly belong here, are more conveniently treated under another head.]

[5. Vascular tonics, which strengthen the circulation, also belong elsewhere.]

CLASS III.—Alteratives.

Definition.—Medicines producing some general change in the nutrition of the body, not precisely either nutrient or the reverse. Intermediate between nutrients and constitutional poisons. Some are poisons in large doses.

Division I.—Oxidants.

1. Water. Accelerates chemical changes in the body, especially oxidation.
2. Alkalines. Act like water, more energetically.

Division II.—Poisons.

1. Iodine and chlorine.
2. Mercurials.
3. Arsenicals.
4. Antimonials.
5. Sulphur and phosphorus.

[6. Vegetable alteratives (doubtful), sarsaparilla ?, taraxacum ?, &c.]

N.B.—Poisons which affect the general nutrition of the body are an extreme case of alteratives.

α β GENERAL REMEDIES USED LOCALLY.

Definition.—May be also called *local remedies of universal application*, *i. e.* such as have an action on animal tissues special to themselves, but, generally speaking, the same on all tissues. Their action best known as affecting accessible parts of the body; and some only are known to affect remote parts.

CLASS IV.—Superficial stimulants and irritants.

Definition.—Stimulate the life of a part, heighten its sensibility, and cause more blood to flow to it. In excess, cause irritation and inflammation. Some when absorbed stimulate remote parts. Often used for their indirect effects in counter-irritation.

Physiological type.—Heat, within physiological limits.

1. Rubefacients, as *heat*, ammonia, strong alcohol, camphor, mustard, turpentine, iodine, various metallic salts, especially nitrate of silver.
2. Vesicants, as cantharides, acetic acid, boiling water, mustard, &c., in excess.
3. Pustulants, as croton oil, tartar emetic.
4. Aromatics.

Use.—As counter irritants, or to change the type of chronic inflammations.

N.B.—Withdrawal of the normal atmospheric pressure has, on external parts, an effect similar to that produced by stimulants.

CLASS V.—Astringents and antiphlogistics.

Definition.—Cause contraction of living tissues, by diminishing the size and increasing the density of, and sometimes withdrawing water from, the minute elements. Hence they lower functional activity, diminish blood-supply and secretion, allay nervous irritability, act as styptics. Some when absorbed act on distant parts. Most, in concentrated form, are stimulant or irritant.

Physiological type.—Cold.

1. Dilute acids, especially sulphuric.
2. Drugs containing tannin, its allies or derivatives.
3. Metallic salts, especially of lead, zinc, silver, iron, aluminum, bismuth, &c.
4. Dilute alcohol.

Use.—Astringents are the chief agents for treating accessible inflammations.

CLASS VI.—Destructives.

Definition.—Destroy animal tissues, acting on living as on dead parts. In dilute form astringent or irritant. *Synonym*, caustics or escharotics.

Physiological type.—Ardent heat.

1. Concentrated acids.
2. Certain metallic salts, as nitrate of silver, nitrate of mercury, chloride of zinc, &c.
3. Caustic alkalies.

N.B.—Especially useful in treatment of new growths.

CLASS VII.—Superficial protectives.

Definition.—Shield a part from irritation of air, changes of temperature, friction, &c.

Physiological types.—Natural skin, also the scab on wounded surfaces.

1. Collodion.
2. Fatty substances and glycerine.

Use.—To check secondary inflammations of skin.

CLASS VIII.—Emollients and demulcents.

Definition.—Soften tissues, cause relaxation, soothe nervous irritation, and remove obstructions in blood-capillary or lymphatic circulation.

Physiological type.—Warmth, combined with moisture.

1. Warm water.
2. Poultices.
3. Certain mucilaginous substances.
4. Fatty substances and glycerine.

Use.—These applications may cause resolution of inflammatory stasis when not extreme, and determine the direction of suppuration.

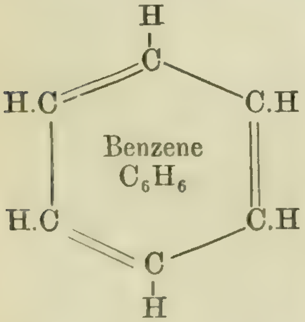
ON SALICYLIC ACID.[1]

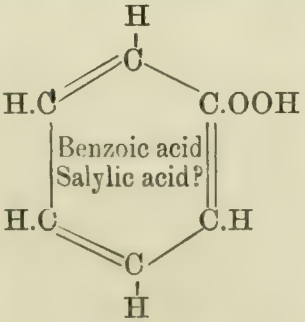
WITH SOME OBSERVATIONS OF THE EFFECT PRODUCED BY THE DRUG ON THE ELIMINATION OF UREA.

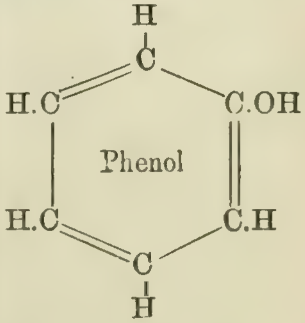
By THEODORE D. ACLAND, M.A. Oxon.

Salicylic acid, like many other substances which have been made of service to mankind, was produced on a large scale not after a patient inquiry for a drug which would serve a particular purpose, but in the course of a scientific contest between two of the most eminent chemists of modern times.

In 1874 Kolbe felt bound to attempt the proof of a statement made by himself and Lautermann some time previously, to the effect that an organic acid existed, having the same composition but not the same reactions, as benzoic acid; in other words, isomeric with it but not identical. Had this been true, Kekule's beautiful theory of the composition of the benzene molecule would have been proved incorrect, for on Kekule's view no acid can exist having the benzene radicle (C_6H_5) associated with carbosyl (COOH) which is not identical with benzoic acid.







The empyrical formulæ of Benzene, Phenol, and Benzoic acid are given to show the close relationship which exists between them.

In order to procure this new compound, salylic acid, salicylic acid had to be first obtained, but the expense of salicylic acid was very great, since it had as yet only been prepared from its

[1] An Essay, which was read before the Physical Society of St. Thomas's Hospital, and to which the Society's Prize was awarded.

natural sources, oil of wintergreen and salicin, and by a synthetical process by the action of carbonic acid on phenol in the presence of sodium. It was to the latter process that Kolbe turned in his difficulty, and after repeated failures, succeeded in bringing to perfection the present method of manufacture by the action of carbonic acid on sodium phenate, which results from the action of caustic soda on phenol. He, however, failed in his attempt to prove the existence of salylic acid, but achieved a far more important success than this, in that he has made it possible to produce on a large scale a drug which was much needed, and which has already proved of great service in the relief of suffering. No sooner had Professor Kolbe produced salicylic acid by a method applicable to commercial requirements than he endeavoured with pardonable eagerness to discover in what way it might be made useful. Arguing from the fact of its near relation to, and easy resolution into carbonic and carbolic acids, he conceived that it might be useful as an antiseptic, and having himself with some of his pupils proved on their own persons that it was not poisonous in doses up to 27 grs., he applied to the professor of surgery in Leipzig, Thiersch, to aid him in his further researches. At this time the marvellous results of Lister's antiseptic treatment had been published in Munich and Halle, and Professor Thiersch set himself to work to find out whether this non-volatile, harmless antiseptic was not as useful as the ill-odoured, irritating, and poisonous carbolic acid. Kolbe too set himself to discover its value as an antiseptic and antiferment in matters not related to surgery. Then little by little there sprang up in all parts of Germany observers, some capable of observing, others quite the reverse, who sought to prove the almost miraculous cures brought about by this new drug in all classes of disease in which the blood was supposed to be poisoned or infected by bacteria But the salicyle enthusiasm, as it was called in derision by its opponents, could not last; it was compelled to give way to careful experiment and scientific research, which should preserve it as a precious gift for the relief of suffering, or condemn it to well-merited oblivion.

The properties of salicylic acid as an antiferment and antiseptic were subjected to a rigorous test in the chemical laboratory of Leipzig, and in the course of the inquiries it was discovered that the neutral salicylate of soda was possessed of no antiseptic properties. The methods relied on for testing its properties as an antiferment are here shown.

1. Its power of neutralizing the action of vegetable ferments, *e. g.*, torula.

There are here three flasks; to each of them an equal quantity of a solution of sugar and fresh brewer's yeast has been added and to one of them no other substance. To the second a known weight of salicylate of soda has been added, and the sugar solution contained in these two is in an active state of fermentation. The third flask has in it a weight of salicylic acid equivalent to the weight of salicylate of soda added to flask No. 2. All the yeast has sunk to bottom of the flask, and there is no sign of fermentation.

2. Its power of neutralizing an unorganized ferment, *e.g.* emulsin. Three flasks are shown, each containing the same weight of emulsin and amygdalin dissolved in water. To one, salicylate of soda has been added; to the second an equivalent weight of salicylic acid, the third has had no addition made to it. The first and third smell strongly of oil of almonds, the second is absolutely odourless.

3. Its power of checking the bacterial ferment. Urine is shown in which the fermentation has been (*a*) stopped (*b*) prevented by the addition of salicylic acid, while it proceeds unchecked by an equivalent weight of salicylate of soda.

The fermentation of urine is closely connected with, if not dependent on, the presence of bacteria in it, and it was in order to demonstrate the germicide properties of salicylic acid that Professor Thiersch undertook the inquiry as to how far this acid was capable of superseding carbolic acid in Lister's antiseptic method of treating wounds. More than 300 years ago (1536), as Thiersch himself relates, antiseptic surgery was in vogue. It was practised with a brutal disregard to anything but what was considered good science, and the wretched sufferer who in battle escaped death from a bullet was brought more nearly to his end by the pouring of boiling oil into the open wound. This was done not in ignorance, but arguing from the repeated occurrence of septic poisoning, it was concluded that the missile which inflicted the injury was the cause of the sepsis, and it required heroic treatment such as this to destroy the poison. Paré

(Ambroise) was the first to doubt the efficacy of the treatment; and he probably never would have done so had it not been for a lucky accident which made his oil run short, and compelled him to adopt another method of treatment. He did this, and his patients prospered. As time went on he argued that the bullets did not cause the sepsis, but, as at the present day is done, he attributed the sepsis to the foul air and the admission of decomposing substances into the wounded surface. Can it be said that we have made much progress in our knowledge since his day? We hope and believe that by degrees the veil of mystery which shrouds the processes of septicaemia and pyaemia is gradually being raised; how these diseases are produced it is not here a proper place to enquire; for us it is enough to know that from the labours of Mr. Lister and Mr. Callender in England, and of Professor Thiersch in Germany, we have arrived at the knowledge of a process which is able to prevent in most cases and mitigate in all those pyaemic inflammations which are the dread of all surgeons more especially in places where the patients are collected in too great numbers to receive individually that care and attention necessary for good results. The published reports of these observers have shown that carbolic and salicylic acid when applied by what is known as Lister's antiseptic method are the most serviceable agents which we now possess for preventing infection. There is one other antiseptic "Thymol" which has lately been introduced in England by Mr. Spencer Wells and by Mr. Mac Cormac of this Hospital, and which if it proves not to be injurious to the patient as seems to be the case from the report of Prof. Wunderlich's Clinic at Leipzig bids fair to rival if not to supersede the others. According to the researches of Bucholtz quoted the other day as many of you will remember by Prof. Sanderson, the germicide (which for a moment must be assumed to be equivalent to antiseptic) qualities of the following reagents stand in the following order:—

1. Chlorine, 2,500; 2. Sulphurous acid, 66; 3. Salicylic acid, 31; 4. Thymol, 20; 5. Carbolic acid, 2·5; 6. Alcohol, 0·5.

In other words, chlorine is 75½ times, sulphurous acid twice as destructive of bacteria as salicylic acid. The two first-named reagents are powerful irritant poisons—carbolic acid in any quantity is much the same. Thymol when taken internally in one-third as large doses as harmless doses of salicylic acid has produced nausea—headache—acute delirium—collapse (Bälz, *vide* Bibliog.) Therefore if this table is correct, salicylic acid is really the only one of the series which far surpasses all the others in its fitness for the purposes to which it is to be applied. The others seem dangerous or volatile and therefore unfitted for *surgical* purposes. For there does not appear to be any ground at all for supposing that salicylic acid is the best antiseptic for *general* purposes, where it is immaterial whether the substance is poisonous or not. It was assumed just now that germicidal and antiseptic were synonymous terms; and they must be so if Prof. Tyndal's very broad definition that a germ is anything which germinates is correct. For there seems to be no doubt that where sepsis is produced, there under normal conditions bacteria exist, and that pyæmia or other blood poisoning follows or is concomitant with the presence of these bacteria which must be supposed to have originated from germs. This, however, is not the place to enter into a discussion as to whether bacteria are a cause, a consequence, or even a concomitant of those putrefactive changes which end in mankind in septic poisoning. Whatever germs may be, and however they produce the terrible results of pyæmia, or whether they produce them at all, does not, for us, alter the fact, that salicylic acid amongst other antiseptics is a powerful destroyer of bacteria, rendering them incapable of multiplying, and also is powerful to prevent putrefactive changes in a wound. The fact remains that Lister's method of antiseptic surgery has received the warmest approbation from many of the most eminent surgeons now living, amongst whom Prof. Volkmann of Halle, declares it to be the greatest advance in the science of medicine which has been made during the present century. This sentiment received the cordial approval of Prof. Sanderson, at his lectures in December, and that of many others. It must then be admitted that antiseptic surgery is good and beneficial in its results; it only remains for me to attempt to show how salicylic acid is better, if it is so, than carbolic acid or thymol for the purpose. Mr. Callender after one year's trial at St. Bartholomew's Hospital ('Clinical Society, Reports,' 1876) came to the conclusion, that while admitting its use as a local agent to be fairly commendable, he thought it "inferior in its antiseptic properties to other agents" to which he does not refer—and he does not consider it to be a remedy meriting the strong recommendations which have been given to it by some of those who have made trial of it, because he says there is more discharge from a wound dressed with it, if it is not so effectual against decomposition, and repair is less active.

This is a very clear statement, the premises of which are however called in doubt by Professor Thiersch. But first it may be asked on what principles does the success of the Lister treatment depend:—1, on absolute cleanliness; 2, on perfect rest; 3, on not irritating the wound; 4, on not running any chance of poisoning the system; 5, on preventing the occurrence of septic processes; 6, on not inconveniencing the operator or the patient by smell. The first of these conditions may be fulfilled equally when either is used; the second, third, and fourth are decidedly in favour of salicylic acid; the fifth is probably so, and the sixth certainly is. To quote Thiersch's own words (*German Clin. Lectures*, 1877, p. 158), "the antiseptic effect of salicyle (salicylic acid) dressings employed by me appears quite as reliable as that of the Lister carbolic acid. At the same time the salicylic acid has two advantages: it is less irritating, and it is not volatile. It can also be combined in larger quantities with the dressing, and the latter can be left on longer than the carbolic dressing without endangering the result. As a further recommendation with many will be the fact that salicylic acid is free from smell. Lister himself is staunch in his adherence to carbolic acid; and though the weight of evidence inclines little to either side, it seems obvious that the less poisonous the drug the better it must be for the patient, provided all the antiseptic requirements are satisfied.

While surgery has thus been occupying itself in putting this new drug to a severe test, those engaged in carrying out kindred sciences had not been idle. In the lying-in-hospital at Leipzig salicyle water had been used as a substitute for carbolic acid by Dr. Fehling, who sent in a commendatory report. Two professors, also, of veterinary surgery had made ample experiments on sheep, and Buss had done the same on rabbits. The plan of their proceedings was to inject pus, mixed with the salicylic acid, beneath the skin of the animal operated on, and then to watch the effect. The results of the former were at first so surprising that they came to the conclusion that they had clearly demonstrated by their experiments "that the acid was in the highest degree a preventive against putrefaction, which it is not only able to prevent, but also to put an end to when it has already commenced and is on the increase." "It is," they say, "not only a deodorizer, but also a disinfectant, since it causes the coagulation of those albuminoid matters which are necessary to support the processes of decay. It destroys in fact the cause, and alters the products of putrefaction." These results were indeed gratifying—almost in fact too good, for if it were true, we should indeed have at last obtained a substance perfect as a disinfectant and harmless to the constitution; a substance much to be desired, but not yet obtainable, for soon after this, with a most commendable honesty, these two experimenters published the following statement:—"Salicylic acid is hardly worth a thought as far as the treating of ordinary pyæmia is concerned; small doses are of no value, large doses have a hurtful effect of their own, and yet, after all, do not affect the course of the malady, which progresses every bit as fast." Both these statements have a basis of truth, and both are biassed, the one for, the other against the acid. They both ignore a most important fact, and one which many subsequent observers have entirely ignored—that the *soda salts* of salicylic acid do not act in any way as *antiseptics.* This fact was pointed out almost as soon as salicylic acid began to be known by Neubauer, and again by Kolbe and Von Meyer. This being the case, it must be taken into consideration not only that the blood is alkaline, but that it contains salts which are ready to combine with any free acid which may exist in it; so that by this means a great part of the antiseptic efficacy of salicylic acid is destroyed when *taken internally.* That the acid does not enter into combination has been shown experimentally by adding one grm. of it to 200 c.c. of blood serum, the result being that ·66 remained in combination, the remaining ·34 free.[1] The researches of Buss seem to point to the fact that the acid when injected into the blood by itself, acts indeed as a preventitive against septic processes, but not nearly so energetically as might have been expected from previous experiments on its antiseptic properties apart from the living organism. A remedy for this defect in the working of the acid has been suggested, but as far as I am aware it has never been carried out. It is that with it should be administered acid potassium sulphate (the soda salt having been experimentally proved to be of no value), or hydrochloric acid, with a view of giving the salts of the blood something with which to combine while leaving the acid free. Wild speculation was rife about this time as to the possibilities which might be accomplished with the new drug, and consequently, as few things were left untried, it soon became known that a reduction of temperature was the result of giving large doses of salicylic acid; and soon after it was noticed that the non-antiseptic soda salts had still more remarkable effects. This was by one writer supposed to be due to the fact that the carbonic acid in the blood combined with soda setting free the acid in a nascent state, which is hardly a probable explanation, seeing that the salicylate of soda is formed in the presence of, and by the means of, a large excess of carbonic acid. If this is the only knowledge on the subject, we have not advanced very far. But be that as it may, one fact was made clear, and that was that in salicylic acid there had been found an anti-pyretic which the most sanguine of its supporters hoped would soon be a substitute for quinine. Various experiments were then made on animals to test this new discovery which ended in the following general results being obtained.

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[1] Wagner Journal für Praktische Chemie, 1875, p. 332.

1. That the *normal* temperature could be reduced not much more than 1° C. by 75 grains of the acid.

2. That the acid and soda salt cause, when injected into the blood, slight diminution in the blood-pressure, in frequency of pulse and respiration.

3. That the tolerancy of the acid depends on food, *e.g.*, herbivora can take far more without evil effects than carnivora.

4. That 15·30 grains are sufficient to produce dyspnea, followed by general convulsions in a rabbit.

5. That the reflex action of the spinal cord is left undiminished after death from the acid.

6. That the urinary secretions are unaltered. This is not the case as will be shown later on.

7. That moderate doses do no harm and leave no unpleasant after effects.

8. That 38 grns. of the pure acid administered in cachêts, or

15 per annum in water have produced hemorrhagic erosions in the pharynx and rectum of a dog.

Thus much for the physiological effects as studied on animals, almost useless in aiding the physician to determine of what use the drug might be in medicine, since the circumstances under which it was given were entirely different from those met with in disease. It will be well, therefore, and at once to consider the uses of salicylic acid in medicine.

It might reasonably be asked on what grounds salicylic acid could be given internally as a drug, since it had not as yet been proved that the acid had any effect on disease; but evidently if the acid is a powerful germicide, and probably an antipyretic, it ought to exert a powerful influence on those diseases in which bacteria or pyrexia are, or are supposed to be, always present: *e. g.* pyæmia, erysipelas, diphtheria. With regard to the presence of bacteria it is at present only possible to say that in certain septic fevers they are supposed to be always at some period present in the blood of the infected person, but that they are the *cause* of the septic processes can hardly yet be asserted as a fact, though the preponderance of evidence is in favour of this view. Prof. Sanderson remarks, that as we cannot say that torula is the cause of all drunkenness, yet without it no alcohol would be produced; so we cannot say that bacteria are the cause of all septic processes, though without them, as far as is known, those changes could not be produced which cause the phenomena of septic poisoning. As might be expected, the first disease which was treated was diphtheria, both because of the high temperature and also of the presence of bacteria in the false membranes formed in the throat. It was supposed that the acid would lower the one and destroy the other, and in fact one case, under Prof. Wunderlich, regained its normal temperature three days after the commencement of the attack, and was completely well in three weeks. The treatment consisted of 0·3 grms. of salicylic acid with 0·2 grms. Potass. Sulph. Again, fifteen cases are recorded by Dr. Wagner, which all recovered under similar treatment. But, as M. Sée observes, it is very difficult to diagnose diphtheria in very young children, and it is quite possible that an error was made in many of these cases, because there is no disease for which a specific treatment is so much required as diphtheria, and subsequent observations have given little ground for the hope that such a specific has been found in salicylic acid; at least the recorded cases are too few in number to have any general deductions drawn from them. Numerous physicians have treated every kind of fever with this drug, but the only two in which its results have been at all equal to expectation are enteric and rheumatic fevers. Of other diseases treated by salicylic acid, mumps, pulmonary gangrene, and intermittent fevers, nothing can be recorded except failure. Dr. Hillet, of Berlin, has proved that in ague it requires ten times as much salicylic acid to produce the same effect as quinine, and relapses are much more frequent, yet M. Sée declares that salicylate of quinia is more powerful than either quinia or salicylic acid alone. Of the two above-mentioned fevers, the one which is alone likely to be systematically treated with salicylic acid and its salts is rheumatic fever. Of the action of salicylic acid on typhoid fever, much has been written, and the recorded cases are to be counted by hundreds. Amongst the earliest to contribute to our knowledge of this subject, Buss, Stricker, Riess, and Ewald may be mentioned; and as it is as yet too early to decide from general statistics whether the mortality in this disease has been lessened by the use of salicylic acid or no, I propose to consider the results of treatment of 100 cases recorded by Dr. Ewald from Frerichs' Clinic in the Berlin Charité ('Practitioner,' 1876). Of the 100 cases treated there was a diminution of temp. in 80%, an increase in 20%, and an increase of more than 1° in 4%. The maximum fall of T. in 24 hours after commencement of treatment was 4·3°. The maximum rise 1·5%. In fact, in Ewald's words: The results prove the superiority of salicylic acid over all other known anti-pyretics, though the local processes are as far as is known unaffected. Within fifteen minutes or even less after giving the acid, a copious perspiration breaks out, so that a patient may lose 500—750 grms. of water. Almost as soon as this sweating begins the temperature begins to go down, though there does not seem any constant relation between the fall of temperature and amount of sweating. Generally the pulse and respiration are not at all affected. When pure the acid and sodium salt have no effect on intestinal tract or pharynx, though carbolic acid, a most deleterious substance when present, may produce them. Ewald's experience does not lead him to think the tendency to cerebral mischief is great, though M. Robin and several English observers record cases in which the symptons range from vertigo through cheerful, lively, and excited delirium to painful hallucinations. Dr. Riess, after the study of 400 cases, came to the conclusion that by the use of this drug the course of typhoid fever was much shortened, though this is doubted by many (Goldtdammer, 'Berliner Klinische Wochenschrift,' 1876, No. 4). In fact, all seem to agree that the mortality in 1875 was certainly no less and perhaps even more than in former epidemics. This not only shows that in typhoid fever salicylic acid does not constantly act as an apyretic, but also leads to a doubt as to the advisability of using it at all in this fever. There are also many objections to its use from the violent cerebral symptoms it produces. These are due, as I shall show later on, to suppression of urine and consequent uræmic poisoning, and not to the presence of carbolic acid, whose presence in minute quantities is harmless, and also impossible to detect. M. Robin ('Société de Biologie,' Jan. 27, 1877) records the fact that the diminution of urine after use of salicylic acid in typhoid fever is almost constant, and Dr. Murchison's case, quoted below, tends to confirm this; and more than this, some experients made by myself through the kindness of Dr. Sharkey (to whom I wish here to tender my grateful thanks) help to confirm not only that fact, but to support Dr. Murchison's surmise that the cerebral symptoms are due to uræmia.

In a case fully reported (the 'Clin Soc. Trans.,' 1877, vol. x, p. 189) Dr. Murchison drew the following conclusions:

I. That the drug (salicylate of soda) reduced the temperature as rapidly as in rheumatic fever; and when the drug was omitted the pyrexia returned, and the fever proceeded on its course undisturbed.

II. The drug induced violent delirium probably due to the supressed elimination of nitrogenous detritus of blood and tissues.[1]

III. The salicylate caused albuminuria, and almost suppression of urine. There is, however, no statement as to the state of the patients' urine on admission.

IV. That the course of the disease was not shortened by the use of the drug.

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[1] Riess of Berlin has made the same surmise. 'Rev. de. Sc. Med.,' 1877, vol. ix. ee also note at end of paper.

Dr. Ewald states that the cerebral symptoms may at once be relieved by a few drops of chloroform, a method of treatment which I have never seen tried.

Early in 1875 Furbinger and Buss first made known the antipyretic action of salicylic acid. Dr. Stricker, in 1876, published 14 cases of rheumatic fever which, though taken promiscuously, were all cured, and subsequently to this ('Berlin. Klin. Wochenschrift,' Jan., 1876) he has reported on 180 cases, 12 of which had relapses, 2 caught eruptive fevers while in hospital, one had violent delirium, and one was not cured. He sums up by saying, "For several months all the patients in Professor Traube's clinic suffering from acute rheumatism have been treated with salicylic acid. Most of them in forty-eight hours were of normal temperature, and free from pain and swelling and inflammation of the joints."

Dr. Bälz reports on 200 cases treated in Wunderlich's clinic, from which the conclusion has been drawn that salicylic acid is in this fever the best antipyretic known, except in certain cases where cold water or quinine have to be used. It certainly produces increased secretion from the skin and kidneys, and deafness, delirium, and at times mania. But that the use of the drug under normal circumstances is perfectly safe, may be shown by the fact that one of Stricker's patients was in such a hurry to be cured that he took 22 grms. (341 grs.) in twelve hours, without doing himself any harm beyond increasing his appetite.

In England the treatment of salicylate of soda was, as far as I can ascertain, anticipated by the reintroduction of salicine into medicine by Dr. MacLagan, though it must be admitted that the use of salicine as a cure for acute rheumatism is, for all we know, almost as old as the disease itself,[1] since the Hottentots of South Africa have been, on the authority of tradition, not only treating but also curing the disease by tea made of willow tops. I suppose they argued out a cure in the same manner as Dr. MacLagan taking it for granted that their protecting deity would not permit a disease to exist without a remedy, and they sought that remedy in the place where the disease originated most often, and they found it in the willow. Civilised science, more thankless or more unobservant than the savage, tried and rejected the same drug, salicine, which was strongly supported by M. Le Roux, who attempted to introduce it into the Hôtel Dieu in 1830. Dr. MacLagan still maintains that salicine is a more powerful specific against rheumatic fever than the acid, but his conclusions are negatived by the observations of the physicians of St. Mary's Hospital and the Leeds Infirmary, whose cases have been published in the English medical journals.

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[1] 'Lancet,' 1876, vol. i., p. 910.

The deduction I have drawn from them is that the reduction of the temperature, pain, and duration of disease is not nearly so great in the cases where the alkaloid is used instead of the acid. And, *ceteris paribus*, this must be so if the surmise is correct that the former splits up into the latter, salicyl hydride, and other compounds within the body.

Personally I have had no opportunity of observing the effect of salicine, but from the fact that in this hospital it has been entirely superseded by salicylic acid or its soda salt, it would seem that our physicians have decided that it is inferior to salicylate of soda as a drug, and this conclusion receives confirmation from what I have ascertained at our great naval hospital at Haslar. Mr. Jacob, of the Leeds Hospital, has with great kindness placed at my disposal not only a paper on this subject, but also the details of many cases treated with the acid and alkaloid, and I may mention the general results gathered from this source, from which it is evident that in a large majority of cases the pain abated in from ten hours onwards (in 52 cases of M. Sée only one attack lasted three days). The articular swelling goes down, and by the third day the movements of the limbs are free. In the Boston City Hospital 110 cases were treated, 59 m., 51 f. Among these the mortality was 4·76 % as compared with a mortality of 13·5% previous to the introduction of the new drug. There was delirium in only 3 cases, and one of these was delirium tremens; and the nervous symptoms were only developed in those of a previously weak constitution. Of Stricker's cases mention has been made above.

The temperature, according to M. Sée, seems to diminish after the pain, showing the pyrexia to be consequent on, rather than the cause of the pain and swelling. If this is the case, subacute rheumatism ought to be amenable to the same treatment as the acute form, since, in this case, it is not the lowering of the temperature which cures the active processes of the disease, but the prevention of the active processes which causes a diminution of the temperature. The majority of authors agree in stating that the apyretic forms of rheumatism are but little affected by the drug, and though M. Sée adduces in proof of his statement the cure of 33 cases of subacute and apyretic rheumatism, it seems likely that they were amenable to treatment only because an acute attack was superposed on the chronic malady, and it was the acute symptoms which were relieved, rather than the chronic disease permanently cured; and this is no doubt the case in sudden acute outbreaks during chronic rheumatic arthritis.

The duration of the attacks of acute rheumatism are undoubtedly much shortened by the use of salicylic acid, but it has been urged that it is at least unwise, if not positively unsafe, to cause a sudden suppression of such a disease as rheumatic fever.

The success of a drug, it is urged, is not to be reckoned from the amount of suffering it diminishes, or the number of complications which it prevents, but from a comparison of the average mortality before and after its introduction.

The mortality before its introduction was over 10 % of the cases treated, and less than 15 % were affected by the treatment. In support of this M. Lebert gives records of 105 cases, 10 got well in from 5—15 days the average duration of the remaining 98 cases was 35 days. The Boston City Hospital reports record, as I have previously mentioned, a diminution of mortality of from 13·5 to 4·76 % subsequent to the introduction of the salicylic treatment. M. Sée records only one failure in 52 cases, and Balz, Stricker, and other Germans also think that a cure in from one to three days may be predicted in a large proportion of cases.

Mr. Jacob reports from Leeds Hospital—

Cured	56·6 %	= 92·0	Cardiac affections after treatment	3·2 %
Relieved	35·4 ,,		Deaths	6·4 ,,
Unaffected	8.			

General results from 425 cases quoted = bad 2·5 %, deaths 21·

Thus, from a record of nearly 600 cases an unequivocal answer can be given to those who doubt either the efficacy of salicylic acid to shorten the course of the disease, or to diminish the mortality. But the opposers of this drug declare further that, admitting that the mortality from rheumatic fever is diminished, and the course of the disease shortened by the use of salicylic acid, yet its use ought not to be sanctioned, since it may not only not prevent complications, but even may introduce new ones, by affecting the kidneys, and some say even the brain. The latter objection is without any support, for no case of the permanent production of cerebral mischief has, as far as I can ascertain, be recorded; and the second objection is of so small importance, that in the many hundreds of cases reported I can only find mention of 2 cases where albuminuria was produced with any *evil* results, and neither of these was in cases of rheumatic fever, with which alone I am now attempting to deal.

In the first of these cases, reported by Professor Petersen, of Kiel (Berliner Medicinische Wochenschr., 1877) the patient took in six hours 340 grns. of salicylate of soda, with the effect of producing delirium and albuminuria, but she eventually recovered.

In the second case, reported by Professor Abelin in Stockholm ('Med. Times,' Jan. 13, 1877), an infant at the breast æt. four months died with symptoms of poisoning, after 15 grms. of the pure acid had been administered at one dose, the acid having, in fact, acted as a caustic on the mouth and pharynx, and left the child unable to take its food. Albuminuria and pneumonia came on, and in ten days the child died.

No doubt albuminuria may be produced by the excessive use of this drug in cases where the temperature remains obstinately high, and where, from the amount of pyrexia, the natural tendency to albuminuria is great; and it must be taken as an ascertained fact that albuminuria may coexist with the salicylic treatment, and may, in some few cases, be due to it, though it seems never to have been produced in some previously healthy person by the use of the drug.

With regard to the effect of the drug, or the more fatal and more common complications of rheumatic fever (I allude of course to inflammations of the serous membranes), there is little to be said. In recording 52 cases, M. Sée observes in no one case where the heart was sound when the salicylic treatment was first commenced, did any endo- or pericarditis take place. Nothing can be more explicit than this, but M. Sée was peculiarly fortunate.

Salicylic acid has never been observed to have any direct effect on the cardiac complications after they have once begun. It only prevents the spread of such mischief as has already commenced, and by so doing leaves nature in a position more suitable for the repair of that which has already been done—if indeed it is not irreparable. The drug seems to have no effect on chorea consequent on acute rheumatism; but Wunderlich has put on record a case, rheumatic tetanus, which it cured. M.M. Vidal and Bourchard record cases where pain of incipient selerosis of spinal cord was much relieved by 10 grns. of the acid.

The only other class of disease on which salicylic acid seems to have any influence includes such as—gout, acute and chronic, rheumatic arthitis, and rheumatic gout. The recorded cases are few, and though much relief seems to have been given in some of the acute attacks, yet the benefit derived in the chronic cases cannot, I think, be considered as proven. If it is the case that salicylic acid can prevent the combustion or splitting up of albumen, and therefore the formation of such incomplete combustion products as uric acid, much may be hoped from its use, and if it combines with uric acid when it is formed and is eliminated as salicyluric acid, as is asserted, then on purely theoretical grounds there is reason for expecting that it would prevent the formation of gouty concretions by stopping formations of and assisting in the elimination of uric acid from the blood. Many difficulties remain to be solved, and it is only experiment and observation which can determine whether these deductions are rational or not.

It only remains for me to give a brief *résumé* of those points which have been discussed, and then to conclude with some account of the methods by which salicylic acid and its salts are administered and eliminated.

As an external antiseptic, salicylic acid has a marked effect which for some purposes presents advantages superior to carbolic acid. It has not been proved to have any effect on purulent affections or contagious maladies, and even such diseases as are caused by, consequent on, or coexistent with the presence of bacteria on the blood and secretions, have not been shown to be permanently affected by its use. Diabetes, too, which has been ascribed to the action of a definite ferment, is not affected by this drug. In the 'Brit. Med. Journal' for March 2 Dr. Pye-Smith states that glycosuria may even be produced by its use.[1]

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[1] Since writing this I have carefully tested the precipitate produced by boiling Fehling's solution with salicyle urine, and have found no trace of copper in it, and I have never seen any reason to think that glycosuria was produced by the use of the drug.

As an antipyretic in certain cases salicylic acid is unrivalled, though it cannot compete at all with quinine as a specific against ague and malarial poisons. It is powerless against variola, and has not been proved to have any very beneficia effect on typhoid and there are reasons against its use in this fever which will be considered later on; it is in acute rheumatism that its powers are most felt; it seems to strike at the root of the disease and only to act secondarily as an antipyretic.

The methods of administration and elimination must now be glanced at. The preparations most commonly in use are salicylate of soda, salicine, salicylic acid, salicylate of lithia, salicylate of quinia.

The first mentioned is, as far as present knowledge can decide, the most advantageous form in which to administer the acid in acute rheumatism, though for reasons stated previously and to be considered again below it is, as far as I can judge, quite useless to expect any advantage from its use in purulent affections. The acid, pure or combined with acid Pot. Sulph., is best given in câchets. The other preparations are freely soluble in water, and may therefore be given with any of the ordinary menstrua used in medicine.

The acid is absorbed into the system, primarily of course by means of the blood. Here it may either exist as an albuminate (Friedberger)[1] or as a soda salt, though Sée,[2] Binz,[3] and others say that the soda salt is decomposed into the free acid and Sod. Carb. by free carbonic acid. How can this be the case when, as mentioned previously, the soda salt is made by and in the presence of excess of carbonic acid?

Again, from the small success which has followed the treatment with the salicylates, of septic poisoning, it is probable that only the non-antiseptic alkaline or neutral salts of salicylic acid can exist in the blood; while the powerfully antiseptic acid enters into combination immediately it is absorbed.

Salicylic acid is also eliminated by the sweat, and saliva.

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[1] 'Berliner Klin. Wochenschrift,' No. 13, 1876.

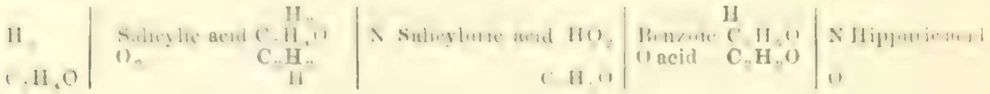
[2] See 'Bull. de l'Acad. de Med.,' 1877.

"As the combination in blood can be extracted by simple agitation with ether, it must be some salt soluble in ether which is present there. Salicylate of Soda acid is not soluble in ether.

[3] 'Practitioner,' Nov., 1876.

It is contained in serous effusion of a blister, but has not been discovered in hydatid or ascitic fluid.

It is finally excreted from the system in the urine, either as sodium or potassium salt. Some say it is excreted as free acid or salicyluric acid; this last compound, mentioned previously as a method of eliminating uric acid, bears the same relation to salicylic as hippuric to benzoic acid, and is a conjugated acid formed thus:—



The presence of its compounds may easily be recognised by the purple colour given with ferric salts; it has been found to be present from 8½ minutes to 48 hours after administration. The effect of the acid on the excretion both of urine and urea has been very variously stated. M. Sée and Bälz (Wunderlich's Clinic) say that the urine is increased. Dr. Murchison[1] says it is diminished in typhoid; this statement is supported by M. Robin[2] and since this inquiry presents many points of interest, and there are no published records concerning it as far as I know, I shall lay before you the results of some investigations made by me in this hospital. The points to be investigated were—

1. The effect of salicylic acid or its salts on the temperature.
2. ,, ,, ,, vol. of urine passed per diem.
3. ,, ,, ,, total excretion of urea.
4. ,, ,, ,, per-centage excretion of urea.
5. The relation of any between the total qty. of urea passed and temperature.
6. ,, ,, ,, ,, albumen.

I have had the opportunity of investigating five cases of acute rheumatism treated with salicylate of soda, in which albuminuria was present: of two of these cases the charts are printed below The urine was daily tested for sugar albumen and urea; sugar was never found.

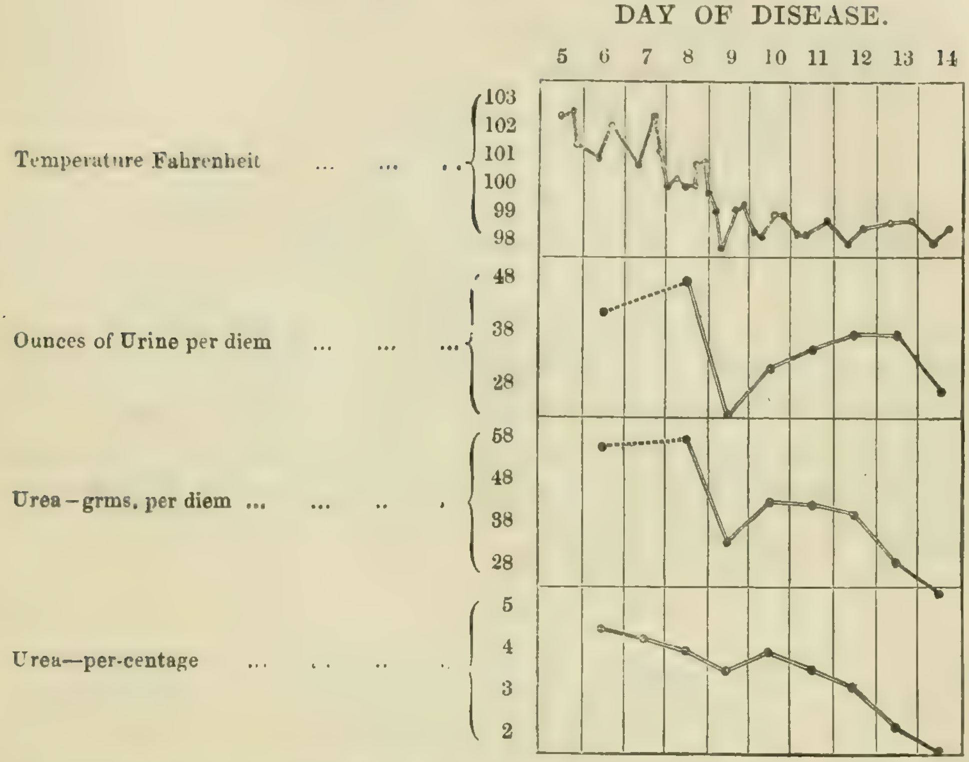
Albumen disappeared in each case during the salicyle treatment, though in one case there was a very considerable amount of albumen present before the treatment was commenced.

[1] Murchison, Clinical Society's Trans., 1877.

[2] Robin. 'Soc. de Biologie,' Paris, 1877, Jan. 27.

I.

Henry L. *Acute Rheumatism.*

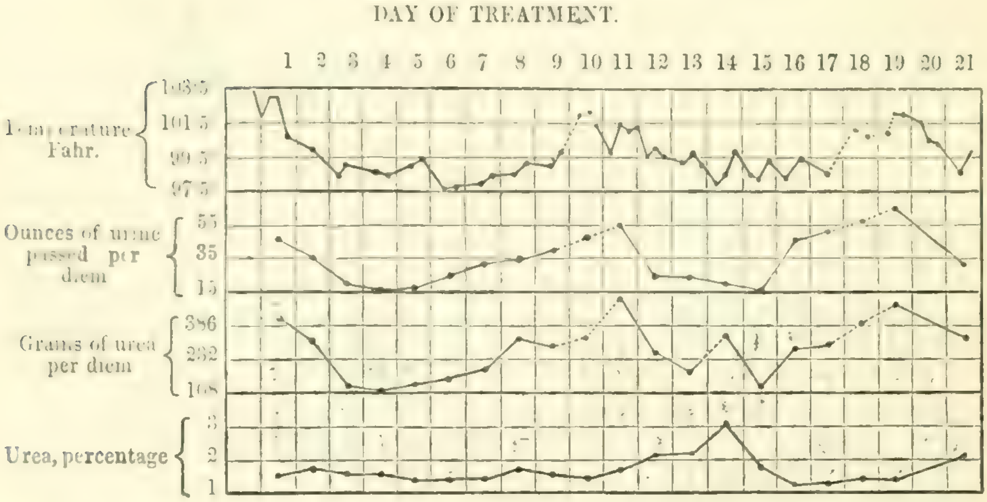


Before commencing the detailed description of the three cases to which I wish to call your attention, it will be well to explain the method on which the charts to illustrate them are made. They are divided horizontally into four parts, the temperature occupying the highest. The temperature was taken every time gr. xx of the salicylate of soda were given, and during the period when the administration of the salicylate of soda was omitted the lines are dotted. The second division shows the total volume of urine passed per diem. The third shews the total grms. and the fourth the percentage amount of urea passed during the preceding twenty-four hours.

The first two cases were treated with salicylate of soda, every two hours, 20 grains, No. 1, after he had been in for two days, during which time he grew rather worse than better. It may be observed that in both cases within forty-eight hours after commencing the treatment, the temperature had dropped more than four degrees, while the diminution in the total quantity of urea and urine was so well marked as to be almost inexplicable except on the ground that it was effected by the drug. In one case there had been a diminution in the urine of from 18—28 f℥; in the urea of from 63—35 grms. during the twenty-four hours; while in the other case there was a diminution of from 50—15 f℥ in the urine, and from 24·5—7·5 grms. in the urea in forty-eight hours, and during this time the per-centage of urea had undergone hardly any change. In both cases there is a gradual reaction after the sudden fall. In Case 1 the temperature oscillated, only once reaching 100. The volume of urine gradually increased up to the time when the salicylate was omitted. The total quantity of urea after one rebound from the sudden depression sank gradually to its lowest point. The percentage of urea having been extremely high (five per cent.) sank gradually as the processes of fever subsided, and the patient was cured. No. 2 was a more complicated case, but the charts show exactly the same processes.

II.

R. H—, *Acute Rheumatism.*



Diet, milk. 13th day, chop. The dotted lines show when the salicylate was omitted, also when the articular pains increased.

The temperature after reaching its lowest point does not rise to 100 for six days. The volume of urine after its first sudden fall rises steadily with only one oscillation until eight days after the commencement of treatment when the salicylate is omitted. The total quantity of urea does the same. When the salicylate treatment is omitted it gives a sudden shoot up and reaches a higher point than any it had before attained. All this time the per-cent. of urea remains much the same. Nine days, after beginning treatment with the temperature at 99·8, the salicylate is not given for twenty-four hours, on the tenth day the temperature reached 102°, the total of urine and urea gradually increasing until on the eleventh day they reach the highest point they have attained during the attack. On the evening of the tenth day, in consequence of the increasing pain, the salicylate is again given (gr. xx every four hours), and after eight doses have been given, down sink the total quantity of urine and urea, the temperature doing the same with great oscillations, so that on the fifteenth day of the attack, five days from first relapse, the temperature is about normal, and the total quantity of urea very small indeed. From this point the temperature rises gradually until on the seventeenth day of treatment it again reaches 100. The salicylate was omitted for thirty-six hours. The temperature goes on rising steadily with hardly any oscillation until it reaches 102°. The salicyle treatment is again adopted and the temperature sinks to a little above normal. During the rise of temperature the amounts of urine and urea are increased too, especially during the two subsequent days on which the salicylate treatment was omitted. During these two days the amount of urine is greater than at any previous time, and the amount of urea as high as it has been except on one occasion ; during all this time the per-centage of urea is very low, omitting two days, during which there was a most violent disturbance, caused by the patient having been permitted to take meat on the previous day. As soon as the salicylate treatment was adopted for the third time the temperature in forty-eight hours dropped nearly 3·3°, and the urine and urea were much reduced. Although time forbids me to enter into the minutiæ of this case, yet I may mention that in Case 2 the pain began to abate after the second dose. Fig. 3 shows the same results—a great diminution in the amount of urine and urea excreted during the administration of large doses of salicylic acid having taken place. Before drawing any deductions I will call your attention to the fourth case, which is that of a young man taken at random from those cases of rheumatic fever which presented themselves for admission, and which was treated on the old method with alkalies, and with this result. The diagrams present a general want of relation between the component parts, only two things seeming to be connected, viz., the *diminution* of urine with the *increase* of temperature, exactly the reverse of the other cases. (Chart not inserted.) The result of the treatment was that at the end of eight days the patient was rather worse than on admission, and after four weeks the temperature was only 0·3° lower than at the commencement of treatment. This case requires confirmation by others treated in a similar manner, and I hope at some future time to place the result before you.

So much for the facts. It remains only to be seen what, if any, conclusions may be justly drawn from them. Case 2 undoubtedly illustrates well what is recorded by many observers that relapses are very likely to occur, especially if the salicyle treatment is not continued for some days after the temperature has been reduced.

2. From Cases 1 and 2 the conclusion seems inevitable that reduction of temperature, meaning of course diminution in the active processes of fever, is followed by diminution of the total quantity of urea excreted.

3. That the per-centage amount of urea excreted remains (where the diet is regular) but little affected by drug or reduction of temperature.

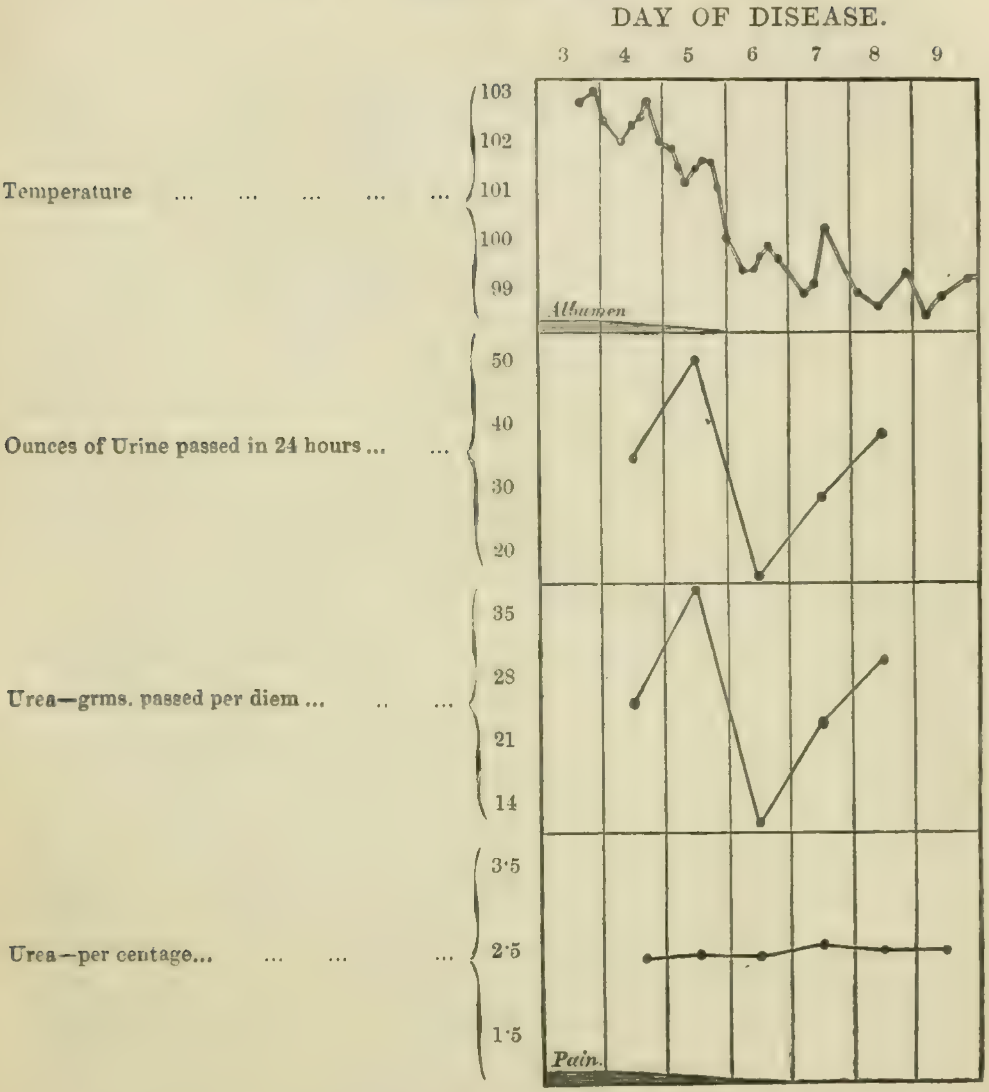
4. That reduction of temperature is consequent on diminution of pain.

5. That salicylic acid acts as an opponent of the causes of rheumatic pain whatever they may be, and only acts secondarily as an antipyretic.

6. That the quantity of urine is diminished directly or indirectly by the drug.

III.

T. L. *Acute Rheumatism.*



7. And I may add, as bearing on the question of the elimination of the drug, that the urine passed during the early part of the fever after the commencement of the salicyle treatment becomes loaded with lithates (? salicylurates).

In a note, bearing date October, 1875, I have found the following remark on some experiments made to find a quantitative colour test for salicylic acid.

"It will be seen that the amount of *urea* varies directly as the coloration with ferric chloride, or presumably inversely as the amount of salicylic acid in solution."

This seems to have an important bearing on deduction and seems to show that the production, or at least the *elimination* of urea is lessened by the salicylic acid.

There are now two points to which I wish to call your attention.

It is generally admitted that in enteric fever there is a great tendency to the accumulation of incomplete combustion products in the blood giving rise to the cerebral symptoms called the typhoid state; and the chief thing which excited my interest in salicylic acid was the fact, that in it there is a drug which is not only an antipyretic but also a disinfectant or antiseptic, apparently the very thing with which to combat the fever; but what is the result of treating enteric fever with it? I have yet to learn that it is anything beyond delirium to the patient and disappointment to the physician. In rheumatic fever, on the other hand, there is little tendency to the typhoid state, and it is worth considering whether the facts which have been laid before you may not account for the failure in the one case and the success in the other. In rheumatic fever the system can tolerate for a short time the non-elimination of the nitrogenous[1] decomposition products, notably urea, and in enteric fever it cannot. In the one case there is often reduction of temperature and acute delirium. In the other reduction of temperature and often cure. Further investigation is needed to clear up these points. For my own part I am well aware that these deductions are open to objection on many grounds; and especially on the ground that it may be fairly urged that the experiments are too few in number to support a theory. This does not, however, prevent them from being the foundation, however insignificant, of some knowledge on a subject which is but little understood, and all I ask for them is that they may not on *à priori* grounds be pronounced irrational, but that those who doubt them should make further experiments to prove or disprove the statements which have been made.

[1] Dr. West has informed me that he and Dr. Russel have proved by a long series of experiments (as yet unpublished), that, except in very minute quantities, the *whole of the nitrogen* eliminated by the urine is excreted as *urea*.

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SOLLY MEDAL PRIZE ESSAY

FOR 1878.

By C. E. SHEPPARD.

The following reports of surgical cases treated in the wards of St. Thomas's Hospital, and under the personal observation of the author, accompanied by drawings and clinical remarks, were some of those submitted for the biennial competition for the Medal and Prize founded in commemoration of the late Samuel Solly.

The excellent manner in which the cases have been reported by Mr. Sheppard, the pertinent and interesting remarks which he has appended to each case, and the beautiful and truthful manner in which he has executed the various drawings illustrating the paper, have made it a pleasure for the editors to be able to publish a selection of the Cases in the present volume.

Subcutaneous venous angeioma of thigh.

1. Jane M—, married, æt. 36; admitted into St. Thomas's Hospital under Mr. Sydney Jones, May 4th, 1877, with tumour of thigh.

Family history.—Father is dead, but had good health when alive. Mother alive, at age of sixty-four, in good health. Has five brothers all in good health. There is no history of tumour in any of the family.

History of present illness.—Patient states that until six years ago she was in perfect health. At this date, on getting up the first time on the tenth day after her confinement, she felt a sudden stinging pain on the inner side of the right thigh just above the knee; on looking at it she found, in this situation, a dark blue swelling about the size of a pea.

(The labour was a difficult one; according to her account, a "cross birth.").

This swelling remained stationary for two years, giving her neither pain nor inconvenience.

Then, four years ago, whilst she was suffering from an attack of pleurisy, it increased in a few days from its original size to that of a large walnut. At this point it remained until seven weeks ago, when it began to increase rapidly, and has continued to do so until the present time. At the same time she began to suffer from a shooting pain, at the site of tumour, worst when standing. For the last nine days she has been unable to walk. She knows of no injury which might account for this sudden increase.

Last week she became an out-patient. Whilst being galvanised the tumour suddenly burst, and she lost about half a pint of blood. This was checked by means of a pad and an ice bag, and she was admitted as an in-patient.

State on admission.—On the inner side of the right thigh, directly above the knee, there is a rounded tumour lying underneath the skin, about four and a half inches long by three inches broad, and projecting the surface about one inch. The skin covering it is smooth, healthy, and not adherent to the tumour. The tumour is freely movable on the subjacent tissues. In general consistency it is soft; in some places, especially the upper, the margin has a nodulated feel. The lower part is very tender. There is no pulsation in it. In the recumbent posture the circumference of thigh round the tumour is thirteen and a half inches; on standing up, this becomes increased to fourteen inches.

There are no other tumours or enlarged veins in any other part of the body.

May 12th.—Operation under ether. Esmarch's band placed round the upper part of thigh. The tumour removed by an oval incision, including a piece of skin about one inch broad; there was a fairly distinct capsule to the tumour, so that no difficulty arose in the removal. After the removal of Esmarch's band two or three arteries required torsion; also two large veins, which had helped in the supply of the tumour, were tied. Besides these two veins smaller ones were seen entering the tumour in every direction. The saphenous nerve was seen lying underneath the fascia. The edges of wound were brought together in their whole length by eleven or twelve silver sutures. Leg bandaged from foot, oiled lint, ice bag. The tumour was very vascular and contained a large quantity of blood. On making a longitudinal incision a large recent clot was found in the substance of the tumour; this corresponded with the point from which hæmorrhage had taken place previous to the operation. The tumour was made up of a fibrous-looking stroma (condensed fibrin ?), containing in its meshes a dark red structure closely resembling the corpus cavernosum; temp. in evening 100°.

13th.—Has vomited two or three times since the operation. This morning there is some accumulation of blood in the wound, consequently, central suture taken out and a pad of oiled lint placed on the wound above and below, with pressure of a bandage; temp. 98·6°; evening temp. 103·2°; vomiting.

14th.—Two or three sutures removed; temp. a.m. 102·2°; p.m. 101·8°.

15th.—Some accumulation of pus, &c.; three sutures removed, leaving two in. Lotio Sod. Chlor. to be used four times a day. Temperature again normal; pulse good; appetite fair. Complains of some pain and tenderness in the region of the liver.

18th.—Pain about liver has gone. Temperature still normal. All sutures have now been removed.

23rd.—Some enlargement and tenderness in glands of right groin.

June 1st.—The wound is very nearly healed, there only remain two healthy granulating sores about size of threepenny bits. The tenderness and swelling of right inguinal glands has subsided. An elastic stocking with thigh piece ordered by Mr. T. Jones.

Left hospital June 6th, 1877.

Remarks.—The tumour which was removed in the above case was a particularly good specimen of the "complicated venous angeioma," consisting of a framework made up of a more or less fibrous-looking tissue, enclosing in its meshes masses of structure closely resembling the corpus cavernosum, the whole being enclosed in a fairly distinct capsule through which its vessels of supply entered. The history of its growth is one which seems frequently to accompany these tumours, the growth being very uncertain and capricious in its progress; in this case its course was marked by two very sudden jumps; remaining for two years the size of a pea, it suddenly, in a few days, reached the size of a walnut, then remained at this point for nearly four years, until seven weeks ago, when it again became more active, and rapidly reached its present size. No cause could be given for these rapid changes.

The diagnosis in this case was soon made; its softness to the touch, its absence of fluctuation, and the immense difference in its size in the standing and the lying position respectively, all pointed to its angeiomatous nature; the diagnosis was further aided by the accidental hæmorrhage which occurred. Tumours are described which resemble angeiomas in many respects, but are truly malignant, having a tendency to affect neighbouring glands and to recur if removed; such tumours have a large quantity of carcinomatous growth mixed up with the angeiomatous structure; the question as to whether such growths may originate from pure non-malignant angeiomata seems to be answered in the negative.

The treatment of an angeioma of such large size is a point of great interest. By many the treatment by excision has been regarded as dangerous, the removal, according to them, being liable to be followed by severe and sometimes fatal hæmorrhage; if this treatment be not attempted there still remain the following methods of removal, viz., the écraseur, the ligature, application of caustics, injection of tumour (Tr. Ferr. Perchlor., tannic acid), setons, passage of electric current through tumour, and lastly pressure. It is almost needless to point out the immense advantages of excision over all the other plans of treatment in this particular case; by excising, the tumour was got rid of immediately, without any liability to recur, and the removal was performed without any pain to the patient, whilst in this particular operation the risk from hæmorrhage was less than in one of the minor operations of surgery, only two veins and two small arteries requiring ligature. Perhaps of all the alternative methods one would feel inclined to select pressure as a mode of treatment; to compare this with excision would, however, be absurd; the treatment would extend over a very long period and probably be incomplete in its results, whilst the situation would be in many respects disadvantageous, the great thickness of soft structures intervening between the tumour and the bone interfering greatly with the effectiveness of treatment.

Lymphadenoma.

5. Edwin Thomas C—, æt. 12, admitted into Albert ward under Mr. Sydney Jones, April 16, 1877, with tumour around anus.

Previous history.—Patient states that he was quite well until one month ago. At this time he was kicked in the perinæum by another boy, and from this time he dates his illness. He suffered no pain immediately after the kick, but after two or three days he began to experience pain in that region of a dull, heavy, aching character, gradually increasing in severity, more marked at night than during the day, and interfering considerably with his sitting down. This last condition was the first symptom noticed by his mother. Of late the pain has kept him awake at night; at no time has there been any pain with, or difficulty in defæcation. About a week after the pain first came on, that is, about three weeks ago, he first noticed a swelling in the perinæum; he describes it as being a hard lump about the size of a hazel-nut and situated in the middle line directly behind the anus; this has been increasing in size until the present time. The lump was not, and has not been tender at any time.

A careful inquiry into the family history failed to establish any history of tumour of any kind; parents were both alive and healthy. Neither was there any history of hæmorrhagic diathesis amongst any of the members of the family (including patient).

State on admission, in which is embodied the results of an examination of the tumour made by Mr. Sydney Jones, April 17th (under chloroform). Patient in some respects is a healthy looking boy; his face, however, is pale, lips somewhat anæmic, dark below the eyes. The abdomen is remarkably thin, and the spinal column can be felt with ease; in other parts of the body he seems well nourished. The tumour in perinæum has evidently increased in size very rapidly, for it now occupies the whole breadth of the perinæum, and from half an inch in front of the anus to the tip of the coccyx. On making an examination per anum the rectum was found to be completely surrounded, except in front, by a hard, smooth mass of new growth; the upper limit of the tumour could be felt by the tip of the forefinger as a hard, rounded, well-defined ridge about two and a half inches from the anus. The coccyx seemed to be inseparably connected with the tumour and moved with it.

The syrup of iodide of iron (♏xx b. d.) ordered.

May 5th.—Has remained about the same. The skin covering the tumour is this morning of a dark red colour, as though ecchymosed. Patient complains to-day of much pain in his back, about the sixth or seventh dorsal vertebra, and this morning he passed a motion involuntarily.

6th.—A subconjunctival hæmorrhage in right eye appeared this morning.

8th.—A second examination per anum made under chloroform. The tumour has increased in size considerably since the last examination (April 17); it now encroaches more on the rectum, so that the finger is tightly grasped. The well-defined ridge described on April 17th can now be reached only with great difficulty. There is now an enlarged gland in the right groin; a gland in this situation was felt somewhat enlarged at the last examination, and was probably the same as that now felt. The abdomen was observed to be very tense, and this was found to be due to a distended bladder; a considerable quantity of urine was drawn off by catheter.

11th.—On the patient attempting to get up this morning it was found that he could not stand, his legs giving way under him, and he had to be carried back to bed again. When in bed has no difficulty in drawing up both his legs; he complains, however, of a feeling of pins and needles in the left leg. He has also a very severe pain in the left thigh; on examination it was found that there was a dark blue mottled patch on the outer side of the thigh due to subcutaneous (hæmorrhage) extravasation, and extending its whole length, from hip to knee. One third grain of morphia was injected subcutaneously to ease the pain in leg.

The urine has to be drawn off by catheter.

14th.—Urine has been drawn off by catheter since May 8th; this morning, for the first time, he passed a large quantity of urine naturally. This morning a prominence was discovered on the first or second sacral vertebra; over this was a patch of extravasated blood. He complains of feeling unable to move his legs; he manages to draw them up, but has lost a great deal of control over them; the legs are drawn up lazily, and finally fall helplessly on to the abdomen.

15th.—The patient does not look so well; is extremely anæmic and weak. The tumour around rectum and the enlarged gland in groin remain about the same. This morning five or six round tumours resembling peas were found lying under the skin of the abdomen; also one on left thigh. Some hæmorrhage has taken place over the right tibia, as well as, to a less extent, in other places. The loss of control over the legs is much more marked. There is some œdema of scrotum and feet. The motions, which until the 11th had been passed involuntarily, are now passed naturally. There has been no further retention of urine; the abdomen is distended and tympanitic.

The patient has been getting more and more anæmic, and Mr. Jones determined to employ transfusion in the hopes of improving his condition of health.

16th.—Seen by Mr. S. Jones with M. Roussel. Transfusion performed at 2 p.m., by means of M. Roussel's new apparatus. The cephalic vein of patient was opened, and about five ounces of healthy blood injected from the median cephalic vein of Mr. Leatham. During the transfusion the boy complained of a feeling of great oppression and difficulty of breathing; this, however, soon subsided, and in a few seconds a rosy blush spread over his pallid cheeks, and he "expressed himself as feeling better." The edges of the wound were brought together by means of harelip pins, a pad of lint covering the whole. After the operation he was removed to bed, wrapped in blankets, and had hot-water bottles applied to the feet.

From 3.20 to 4 p.m. he complained of feeling cold, and the rosy tint left his cheeks; there were one or two obscure rigors.

At 4.15 p.m. he still complained of feeling cold; temperature in mouth 98·4.° After taking some hot tea and brandy he began to feel warmer, and the colour returned to his lips and cheeks. A motion passed involuntarily, containing no blood.

At 4.45 p.m. he complained of curious sensations all over his body; he looked frightened, screamed, and tried to throw off the bedclothes, complaining of feeling very hot; he then passed six ounces of urine, deeply coloured, and containing a large quantity of blood uniformly mixed with it; after this he appeared easier. Respirations rapid.

At 5 p.m. the temperature in axilla was found to be 105·4°; he complained of great thirst.

6 p.m. perspiring profusely. Restless and irritable.

7.15 p.m. more comfortable, less thirst, lips again blanched. Respiration 48. Pulse 108.

8.15 p.m. Since the last note patient has twice passed urine deeply coloured with blood. A motion passed voluntarily.

9 p.m. Temp. 100·4°. 11 p.m. vomited for the first time; no blood in vomit. Passed a small quantity of urine, still bright red, but containing less blood than on the last three occasions.

17th.—Temperature, 9 a.m., 103·2°. Had two rigors early this morning. Complains of headache; is restless and irritable. Urine has been passed freely, each time becoming less red.

Wound dressed; looks healthy. There has been some oozing from wound during the night. At dinner he took a little meat. In the evening, 10 p.m., temp. was 99·2°.

18th.—Temp., 2 a.m., 98°. Slept well. Vomited twice during the night. Passed urine freely (without any admixture of blood), although once he had a little discomfort before micturition. Is stronger, although very anæmic; complains of headache and disinclination for food. Tinct. Ferr. Perchlor. 5 drops every six hours ordered. Temp., 8 p.m., 98°.

19th.—Passed a very bad night. About midnight his breathing became very laboured. This morning he is suffering from great dyspnœa; respirations rapid, 58; nares dilated, lips livid, countenance dusky. Pulse 120, carotids pulsating forcibly. Complains of pain all over his body, but especially at the back of his neck and at the lower part of his back. Edges of wound gaping and blueish. During the morning he had tremors, affecting all the muscles of the right leg. The dyspnœa went on increasing; patient becoming extremely restless. The pain in his back became more and more intense, causing him to scream violently. Finally, death took place at 12.30 p.m.

Post-mortem examination, May 20th, 2 p.m.—A tumour was found in front and at the sides of the coccyx. The growth presented the ordinary characters of lymphadenoma, consisting of a coarse retiform connective tissue, with small, somewhat irregular cells in its meshes. It filled the ischio-rectal fossæ, and caused protrusion of the anus and neighbouring skin; from the anus it extended to a point two and a half inches above, where it terminated in a well-defined border; above this the tissues were brawny and infiltrated by a similar growth. The tumour firmly embraced, but was loosely attached to the rectum. Extending upwards into the abdomen from the tumour was a chain of enlarged glands. On cutting through the muscles lying on the left side of the spine, on a level with the sixth dorsal vertebra, a mass of new growth, about the size of a hazel nut, was found; also, on the same level, between the coverings of the cord and the spinal canal, was another mass of new growth of similar size, which had evidently been pressing on spinal cord.

In the walls of the heart there were two or three small masses, also spots of ecchymosis, chiefly under endocardium. No emboli. Left lung œdematous; right healthy; small extravasations in both. Kidneys anæmic; on the left side the tubes were in places filled with blood. Spleen natural. Under the mucous membrane of the bladder was one spot of extravasated blood about the size of a pea. Ecchymoses were also found in both retinæ, and in the anterior part of both hemispheres of the brain. Suppuration in both tonsils.

Remarks.—One of the most remarkable features in this case is the extreme rapidity of the disease; the patient stated that one month before admission he was perfectly well, that he then experienced some little discomfort in sitting, and that one week after he noticed a small swelling in the perinæum. Within two months of the appearance of the swelling the patient was dead.

The first symptoms of the growth in the back were noted on May 5th (fourteen days before death), when he complained of pain in the back, and passed a motion involuntarily. Further symptoms were produced by the growth of tumour, viz. retention of urine, loss of power in lower extremities, "and pins and needles" in left leg. The loss of control over bladder and rectum may be regarded as due to some interference with the regulating fibres which pass from the brain to the special centres situated in the neighbourhood of, and presiding over, these organs.

The hæmorrhages which occurred form another very important group of symptoms; they were as follows (in order of occurrence):—Ecchymosis (subcutaneous) over tumour; subconjunctival hæmorrhage in right eye; subcutaneous extravasation of blood in left thigh; subcutaneous ecchymosis over upper part of sacrum; extravasation over right tibia and other parts; the bloody urine; and, post-mortem, ecchymosis and extravasation under pericardium, in both lungs, kidneys, under mucous membrane of bladder, both retinæ, and the anterior part of both cerebral hemispheres. It must be confessed that the blood was not examined during life, but the long list of hæmorrhages given above, with the extreme anæmia, and the œdema of scrotum and feet (May 15th), point almost conclusively to some leukæmic condition of the blood.

The sites selected by these tumours in this case are uncommon; in these situations they would probably be looked upon as heterologous developments, but the widespread distribution of lymphatic or adenoid tissue, and the continual discoveries of its existence in situations hitherto unsuspected, make it probable that in this case the heterologous character is more apparent than real. The relation of lymphadenoma to leukæmia is a subject of great interest and one about which there is much difference of opinion, some holding that leukæmia is a direct result of lymphadenoma, others that such a result is impossible, and that the two conditions form two independent diseases. There can be no doubt, however, that two classes of cases are met with, one in which lymphadenoma is associated with leukæmia, and another in which leukæmia is absent. Virchow accordingly classifies leukæmia, as, 1, splenic, 2, lymphatic, 3, spleno-lymphatic, the latter variety, in which both lymphatic glands and spleen contribute to the leukæmia, being the most common.

According to many writers on the subject, the leukæmia arising in the manner indicated produces secondary morbid changes by reason of the migration of leucocytes, these changes being tumours (lymphomata), and diffuse infiltrations occurring especially in heart, liver, &c. These secondary changes are, however, probably often primary, and instead of being *the result* of the leukæmia *are its cause,* in the same way as the spleen and lymphatic glands. Two cases are reported, and probably many more exist, in which this condition of things obtained; in one the leukæmia existed in connection with lymphomatous growth in the osseous medulla, and in the other case leukæmia was held to be due to a general overgrowth of the adenoid tissue in the intestine. In neither of these cases was there any enlargement or alteration of spleen or lymphatic glands. The case of the boy C— seems to me to furnish another illustration of this condition of things; the spleen was perfectly healthy, and the lymphatic glands were healthy, with the exception of some lumbar glands which had become affected secondarily to the peri-rectal tumour; to explain the deterioration of the blood and the consequent hæmorrhages, &c., one must look to the new growths of lymphomatous tissue and not to the spleen, nor to the lymphatic glands.

The extreme rapidity of growth, the abundance of cells (seen microscopically), and the malignancy of the disease, seem to entitle it to the term "lympho-sarcoma," as proposed by Virchow. I cannot find the record of any case similar to this; the most usual site for lympho-sarcoma seems to be the mediastinum.

As regards treatment, Mr. Jones's first idea, when the patient was admitted, was to make a clean sweep of the whole pelvic tumour; this idea was of course abandoned as soon as the disease showed unmistakable signs of being general.

The effects of transfusion were interesting; one may probably regard the immense and sudden increase of temperature as produced by increased tissue change,[1] the result of the introduction into the system of a large number of oxygen-carrying red corpuscles; when the blood had, by means of the kidneys, regained its original condition of equilibrium, the temperature fell to normal. (*Vide* temp. chart.)

Concussion.

6. George M—, æt. 14, admitted into Albert ward under Mr. Sydney Jones, May 30th, 1877.

History before admission.—Patient fell from a ladder on to a boarded floor, a distance of about twelve feet, striking himself on the left side of head and left shoulder. He was picked up in an unconscious state, and remained so for fifteen minutes; he then recovered for a minute or two and vomited. He again lost consciousness.

State on admission.—7.30 a.m., about one hour after accident. Patient is perfectly unconscious; no response can be elicited on shouting at him, and voluntary muscular movement seems to be abolished. The eyelids are closed, pupils contracted and equal. Pulse 74. Respirations, noisy, about 20, laboured. Urine has not been passed since accident, nor has there been any action of bowels. He has only vomited once since the accident.

9 a.m.—Patient has recovered to some extent; on shouting at him he now responds by movements of the lips and limbs. He is said to have swallowed some milk without difficulty.

11.30 a.m.—Is still unconscious; is very restless, especially on being disturbed in any way; the right arm is constantly employed in scratching the chest, and he is continually throwing off the bed clothes and putting his legs out of bed. The left arm lies by his side perfectly motionless; on lifting it up it falls again heavily; there is no muscular response on pricking hand, and sensation in this arm seems abolished. There is no impairment of muscular power or sensation in legs. The pupils are contracted and somewhat sensible to light; apparently there is some photophobia, but this is difficult to determine on account of his restlessness. On opening the left eyelid the pupil was observed to be contracted; it remained so for about two seconds, and then dilated somewhat quickly (the eye being all the time exposed to a bright light) until it had reached its maximum dilatation; it remained in this condition for some six seconds, when it again contracted to its original size.

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[1] Either directly or through the intervention of nervous system.

12 noon.—Urine passed unconsciously. Bladder is empty. Ice-bag applied to head.

Evening.—Passed motion unconsciously. There has been no bleeding nor discharge from either ear. No depression or other sign of fractured skull can be detected.

May 31st.—Has been very restless during night and slept badly. Both urine and motion passed unconsciously this morning; bladder keeps empty. Is continually yawning

Evening.—During the day he has taken nothing but ℥iij of milk; this was swallowed with great difficulty. The respirations have changed in character, and are now more laboured and noisy. Some twitching of right angle of mouth observed this evening. A blister to the back of neck ordered by Mr. Sydney Jones.

June 1st.—Very restless again during the night. The respirations are noisy and laboured. Pulse rapid, 134. Is still unconscious, and remains in about the same state as on admission; every now and then he has attacks of great restlessness, throwing himself about and calling out. The pupils are contracted and act sluggishly to light. The left arm is now bent at a right angle, and considerable rigidity is manifest on attempting to extend it. There is now some slight reflex movement, the arm moving slightly on pricking the hand; there is no trace of voluntary movement. The left leg is somewhat rigid, and sensation is obviously impaired; on pricking the sole of foot there is only slight muscular response.

Evening.—Remains unconscious; very restless, irritable. Both the left arm and leg are now flaccid, and sensation in left arm seems to be somewhat recovered. Urine passed unconsciously. Pulse 120. Respiration 24. Pupils equal, no strabismus. During the day he has taken O ¾ of milk, which he has swallowed with less difficulty.

This morning, Calomel. gr. j, 4tis horis, was ordered. (At mid-day some hæmorrhage took place from left nostril).

2nd.—During the night slight hæmorrhage from left nostril again occurred. He is also reported to have moved his left arm, and to have had some slight twitchings of the right side of face. This morning he lies in about the same condition; the left arm moves slightly on pinching; the left leg does not move at all. Pupils equal, dilated. Pulse 120. Respirations 24, laboured. Urine passed unconsciously.

5 p.m. Pulse 134. Respirations 20. Pupils dilated, unequal, the left being larger than the right. Bowels not open.

3rd.—Passed motion involuntarily during the night. This morning, pupils normal. Pulse 136. Resp. 28. Skin moist and hot. Temp. 100·3°.

9.30 p.m. Temp. 104°. Pulse 142. Respirations 60. The breathing is now very rapid, noisy, and rattling; it changed its character this evening at about seven o'clock. Left pupil a little larger than right. Gums a little spongy; calomel discontinued.

4th.—Pulse 136. Resp. 64. Temp. 103·7°. The restless movements of body have now ceased. Left arm moved slightly.

11 a.m. Breathing getting gradually more rapid, is now 80. Temp. 104·6°. Pupils dilated.

2 p.m. Cannot swallow anything. Left eye half closed, right eye quite so; pupils now equal. Pulse 178. Resp. 76. Temp. 105·2°. Face covered with perspiration. Skin moist.

3.30 p.m. Temp. 105·6°.

5 p.m. Pulse scarcely perceptible. Temp. 105·7°. Mr. Sydney Jones saw patient and ordered a drachm of Ung. Hyd. to be rubbed into thighs, and Liq. Vesicatorius to be applied to scalp,

6 p.m. Temp. 106·7°.

7 p.m. Temp. 105·8°.

Died at 7.10 p.m. The whole surface of body became blued just before death. Temp. after death 104·4°.

Post-mortem examination, June 5th.—No signs of fracture or other injury to the skull could be detected. The superficial veins were full, and the pia mater somewhat injected. The whole brain was somewhat vascular. The corpus callosum, especially in its middle third, was studded with punctiform ecchymoses, and partially softened as if from bruising. There were also a few patches of punctiform ecchymoses scattered through the cortical grey matter of hemispheres, especially on left side. Slight incipient cerebritis.

The lower lobes of both lungs were collapsed: in the lower lobe of right lung there were numerous broncho-pneumonic patches with recent ecchymoses. In the lower lobe of left lung also some bronchopneumonia.

The other organs were natural.

Synopsis of Temperatures.

	A.M.	P.M.
May 30	97·2	102·4.
„ 31	99·0	99.2.
June 1	99·2	99·8.
„ 2	98·2	102·0.
„ 3	100·3	104·0.
„ 4	103·7.	
June 4th	8 a.m.	103·7.
„	11 a.m.	104·8.
„	2.30 p.m.	105·2.
„	3.30 p.m.	105·6.
„	5 p.m.	105·7.
„	6 p.m.	106·7.
„	7 p.m.	105·8.

Death at 7.10 p.m. Temp. after death 104·4.

Remarks.—In considering a case like the foregoing, one of the first questions which suggests itself is, Are there any positive signs in a case of "concussion of the brain," by which the extent of damage may be diagnosed? Prescott Hewett comes to the conclusion, in his article in Holmes's "System," that there are no positive signs but that the severity of the damage is to be gauged by the severity of the symptoms. There are many authorities, however, who assert that where the brain, besides being concussed, is contused, or perhaps lacerated, certain signs show themselves during life from which a more or less positive diagnosis may be drawn. One surgeon lays down the following symptoms as indicative of brain-contusion: "tonic spasms of the limbs; intense restlessness, tossing and rolling about in bed; unconsciousness; more or less drowsiness without stertorous breathing; and in slighter cases, contraction of one pupil or one eyelid, spasmodic movements of one muscle of face or lips." Now so far as this case goes, it certainly bears out the belief that contusion may be recognised; taking the symptoms in order, tonic spasms of both the left arm and the left leg were observed, the limbs being found rigid at one time and lax at another; restlessness was most marked all through; on the first day he was continually scratching his chest, throwing his right arm and head about, putting his legs out of bed and trying to get out of bed; the patient remained unconscious until death; there was a good deal of drowsiness all along, which was chiefly evidenced by a continual yawning (*vide* May 31), and at the same time was unaccompanied by stertorous breathing.

As regards the remaining two symptoms, they were also present. On June 2nd the pupils were noticed to be unequal, and several twitchings of the angle of the mouth were observed; for the first time, on May 31st.

As far, therefore, as this isolated case is concerned, the evidence is in favour of contusion of brain being accompanied by a set of more or less characteristic symptoms, from which a diagnosis may be made.

The early symptoms from which this patient suffered are fairly those of concussion of brain as laid down by surgeons; they, however, did not last for more than an hour or so, and were then succeeded by the more special symptoms noted above. The patient vomited once; this marked the commencement of reaction and recovery from concussion, whilst it is possible that the same reaction, the restoration of heart's action, &c., marked the commencement of the extravasation into the substance of the brain, which was found post mortem.

The hemiplegia, which was manifested chiefly in loss of power in left arm and leg, varied greatly in intensity; paralysis was all through most marked in the arm. This hemiplegia might possibly be explained by the extravasations found in the grey matter of right hemisphere.

Meningitis was evidently commencing a day or so before death, that is, the fifth or sixth day after the injury (the most usual period); this is shown by the increase of fever (*vide* temp. chart), and borne out by the post-mortem appearances of pia mater.

"Diffused contusion" of brain is a condition more rarely met with than "circumscribed contusion." The localisation of the contusion to corpus callosum and cortical grey matter of left hemisphere, seems to me to render the term "local diffused contusion" more applicable to this case than the term "diffused contusion" alone.

Compound fracture of skull.

7. Dennis H—, æt. 46, labourer, admitted into St. Thomas's Hospital, under Mr. Sydney Jones, February 13th, 1877.

History of accident.—Patient was at work when a heavy metal bucket fell from a height of forty-six feet on to his head; he was rendered insensible at the time for a few minutes, and lost consciousness two or three times on his way to the hospital.

State on admission.—Patient is drowsy, but can be easily aroused by asking him questions: his answers are abrupt, and limited to "yes" and "no." His articulation is very indistinct, and it is very difficult to understand his mutterings. On attempting to open his eyes he throws himself about somewhat violently.

There is a large scalp wound situated in the left parietal region of an angular shape and about four inches across. The scalp wound forms a triangular flap, whilst the scalp is separated from subjacent tissues for some distance beyond base of flap, so as to form a pocket directed backwards. A considerable amount of bleeding from edges of wound.

At the bottom of the wound the periosteum is seen to be stripped from bone over an oval-shaped space about 2 × 1½ inches.

Crossing the centre of this space obliquely from behind forwards is a straight linear fracture of parietal bone about an inch and a half long; in the middle third of this the edges are much contused and broken, and between the edges are firmly lodged pieces of felt (from hat) and spicules of bone. All along the outer side of the fracture the outer table of bone has been split off for a breadth of half an inch.

Blood is oozing in considerable quantity through the fissure in skull.

There is no evidence of any escape of brain matter or subarachnoid fluid.

The right margin of fracture is depressed a few lines. None of the organs of special sense are impaired. Slight photophobia, but vision good. Sensation in limbs perfect.

No bleeding from the ears; there is, however, some loss of power in the muscles of mouth on right side. The right arm and leg are somewhat weakened. Respirations 20, quiet; pulse 60, strong, full, somewhat irregular. No vomiting or nausea. No diarrhœa. No difficulty in swallowing. Urine passed voluntarily (?). Pupils equal, acting fairly to light.

Seen at 10 a.m. (two hours after admission) by Mr. S. Jones. As much foreign matter as possible and some bony spicules were removed from between the edges of the fissure; the skin flap was then secured in position by two or three silver sutures, and a pad of lint with ice bag applied.

During the examination he was very restless and struggled, but the right angle of the mouth remained perfectly flaccid, the right arm was never once raised, and the movements of right leg were but slight.

He was ordered Ol. Crotonis ♏ij stat. and Tr. Aconit. ♏iij every four hours.

In the course of the day he passed water twice, once voluntarily, and once involuntarily; he remained very drowsy, but seemed to understand what was said to him; his articulation was indistinct. During the afternoon he had some difficulty in swallowing milk. He also complained of a feeling of numbness in his right arm.

Feb. 14th.—Passed a good night; sensible; occasionally muttering; complains of pain in his head. Both urine and fæces are passed normally. Pulse remains strong; dose of aconite increased from three to five minims of the tincture.

15th.—Was very restless during night, especially between 1 and 6 a.m.

16th.—Is quite conscious and answers rationally; at times he is inclined to ramble. Some right facial paralysis has appeared. Pupils normal. No strabismus. Has some difficulty in passing water; urine sp. gr. 1013, alkaline, albumen ¼. Pulse is depressed. Aconite reduced to three minims every six hours.

17th.—Still some difficulty in passing water. Scalp wound has healed by first intention except at the posterior part, which is open and discharging pus.

18th.—Remains the same. Facial paralysis is decreasing.

19th.—Passed a better night than usual. Slept during the whole night. Seems weaker, but remains perfectly conscious. The wound is discharging freely; there is now some gaping of the anterior part with discharge.

20th.—Headache. Very drowsy, but irritable. Takes nourishment fairly well. No paralysis or jerking of limbs. Temperature high; no shivering. Pulse good. Aconite continued.

21st.—Is very restless; complains of light. The whole scalp wound is now gaping, and the whole line of fracture is visible; the wound in bone is slightly disposed to ooze.

22nd.—Yesterday evening patient passed eight or nine copious, watery, typhoid-like stools. Several drachms of blood have oozed through the fracture.

23rd.—Temp. rose yesterday evening to 103·3; he is said to have had a rigor lasting about three minutes, and followed by profuse perspiration. Also complained of dizziness. Diarrhœa ceased. Aconite ceased at 11 p.m. owing to depression of pulse.

This morning the scalp wound looks unhealthy, and is discharging a small quantity of thin pus. Urine thick and offensive, passed frequently and in small quantity. Seen by Mr. Jones, who ordered warm water dressing to wound and blister to neck, to be dressed subsequently with strong Ung. Hydrarg.

24th.—Could be roused yesterday evening. At 9 p.m. (23rd) there was noticed paralysis of right arm, with icy coldness, partial paralysis of right leg, and ptosis of right eyelid. At 1 a.m. he commenced aconite again. Copious perspirations during night.

This morning (8 a.m.) there is rigidity of the right arm, with some rigidity of right leg; the left angle of mouth is drawn up. There is great difficulty in swallowing. The ptosis is much less. Blisters ordered to both temporal regions; aconite ♏v, calomel gr. v. One fifth of a grain of Hydrarg. Perchlor. to be subcutaneously injected into the forearm (S. J.). 5 p.m., quite unconscious to all around him; patient cannot be roused in any way. The breathing is noisy and laboured, and almost entirely abdominal, 36. Pulse 112.

Mr. Sydney Jones determined to trephine. The wound was first examined by means of probe. The probe passed outwards under the external table, between it and the inner table, for about half an inch.

The centre of trephine was placed to the outer side of fissure, and the outer table removed; the inner table was removed by the elevator. There was no pus found between skull and dura mater. The dura mater bulged into the opening, and to the finger felt tense and elastic. After passing a probe all round the trephine opening, and finding the dura mater adherent to bone all round and no evidence of pus in this situation, the dura mater was carefully scratched through and opened on a director; about three drachms of blood-tinged serum escaped, but no pus. Trephine hole closed with plug of lint, and skin flap replaced by strapping.

Ice-bag applied to head. Inject. Hydrarg. gr. $\frac{1}{5}$, aconite 6tis horis, and a large blister to be applied over the whole scalp.

During the operation the right angle of mouth remained perfectly motionless (the left one being continually drawn up), and the right cheek was quite flaccid, being drawn in at every inspiration. In the evening the temperature sank to 101·8° (having been in the morning 103·4°).

25th.—Since yesterday afternoon patient has lain in a quiet unconscious state; he has not spoken, but once has shown slight signs of consciousness.

He is now slightly conscious, understanding when food is offered to him, and opening his lips to receive it. Deglutition is performed with difficulty. Skin moist. Temp. 102·5°; pulse 124; resp. 44, noisy, almost entirely abdominal.

Left eyelid closed and immovable; pupils normal, equal. Mouth drawn up on left side. Marked paralysis of right arm, with great rigidity. Sensation in this arm also quite lost. Right leg lies perfectly motionless.

Patient has altogether had seven mercurial injections, in all, $1\frac{2}{5}$ grains of Hyd. Perchlor.; now discontinued. At the site of each puncture there is a superficial slough. Aconite continued.

26th.—About 7 p.m. yesterday evening the respirations changed in character, becoming gradually more and more noisy. ʒj of mercury ointment rubbed into thighs last night. The sordes which had accumulated on teeth were cleaned off; the nostrils were also cleansed; during this operation the right was noted to be quite insensible. There have been no rigors nor vomiting. At times he has passed urine unconsciously.

This morning respirations are 60, very laboured and noisy; nares dilated at each inspiration; cheeks (especially right) drawn in and out with each respiration. At times the respirations become suddenly more rapid, reaching 120 or more, remaining so for half a minute and then subsiding. Pulse 160.

Deglutition is much more difficult. Right arm and leg motionless. Left angle of mouth drawn up. Pupils dilated, equal. At about 11 a.m. the surface temperatures of the two arms were taken, each thermometer being applied for eight minutes; on the left arm it rose to 101·7°, and on the right arm to 100·7°. Temp. in axilla 104·3°; pulse 160; resp. 60.

At 12 noon a general blueing of body was noted. At 2 p.m. temp. was 105°. Later the respirations had increased to 74.

Death occurred at 3 p.m.

A few seconds before death there was a general tonic spasm of the unparalysed muscles. Left leg remained rigidly contracted.

The post-mortem examination was refused (patient being an Irishman).

	A.M.		P.M.	
Feb.	Temp.	Pulse	Temp.	Pulse.
13	97·9	74	99·3	72
14	100·7	80	102·7	84
15	100·1	96	100·2	64
16	98·7	72	98·7	—
17	99·4	70	100·9	—
18	100·7	88	102·2	92
19	101·3	90	102·7	100
20	101·6	84	103·2	88
21	101·5	76	101·6	84
22	100·7	88	103·3	94
23	103·7	96	103·0	96
24	103·4	—	101·8	—
25	102·4	124 (R. 20)	102·7 103·8	136
26	104·3	160 (R. 60)	105·2	(R. 74) 2 p.m.

¼ hour after death 104·3.

Remarks.—When first brought to the hospital this patient was a fair specimen of "concussion of the brain;" the onset of symptoms immediately after the accident, the incomplete loss of consciousness, the quiet easy respiration, the non interference with deglutition, the voluntary passage of urine, the equality of pupils and their action to light, all help to justify the above conclusion. Even at this early period, however, there was noticed a slight weakness of the right arm and leg.

At this time, therefore, symptoms of compression were almost if not entirely absent, and although, from the severity of the damage and the nature of the fracture, a depression of the inner table was quite possible, yet the use of the trephine at this period would have been quite unjustifiable.

The patient remained in about the same condition for two or three days; on the 16th (admitted on 13th) some right facial paralysis appeared; on the 21st some photophobia was first noticed; taking this into consideration, with the pain in head, the great restlessness, and the high temperature (103·2° the evening before), one might suspect that at about this time some inflammation of membranes was commencing.

On the 23rd a well-marked rigor occurred, the temperature reaching 103·7°; this strongly suggested the formation of pus.

On the 24th the symptoms became altered; there was absolute loss of consciousness, great difficulty in swallowing, more complete hemiplegia, with rigidity of limbs and noisy abdominal breathing; all these symptoms pointed to some compression of brain, whether from depressed fragment of skull or accumulation of pus. Trephining was the only treatment applicable, and this was done at 5 p.m. The operation showed that there was no compression from inner table, but about ʒiij of bloody serum were evacuated after incising the dura mater. No pus was discovered. In the evening the temperature fell to 101·8; after this, however, it steadily rose, symptoms got worse and worse, and death took place on 26th.

The question suggested by this case is whether, after the dura mater had been incised, an exploration into brain would have been justifiable, and the answer is rather difficult to determine. One may almost assume that pus existed, partly from the great rise of temperature, partly from the distinct rigor which occurred; this pus was apparently not situated between the skull and the dura mater; the probabilities are therefore that it was situated somewhere in the substance of the brain. There are a good many cases on record where these abscesses in the brain have fortunately been reached, and where recovery has followed their incision, without any bad result; on the other hand, there are also a good number of cases where incisions have been unsuccessful, and where the autopsy has revealed either that no abscess existed at all, or that the knife has missed it altogether. I well remember a case of fractured skull under Mr. Simon, where three incisions were made with a bistoury (after trephining), but without result; death occurred two or three days later, and at the autopsy a collection of pus was found just underneath the left frontal convolutions. Taking all things into consideration, an exploratory incision into brain in the case here reported would not have been justifiable; very unfortunately, a post-mortem examination could not be obtained on account of the vigorous opposition of the friends, so that an opportunity did not occur of confirming the speculations made during life; notwithstanding this, I have thought the case sufficiently interesting to be included in these reports.

Separation of lower epiphysis of femur.

9. Charles S—, æt. 15, printer, admitted into Albert ward, under Mr. Sydney Jones, April 9th, 1877.

History of accident.—Patient states that he was riding on the back rail of a cab, in the sitting position and with his back towards the cab, when his left leg became entangled in the spokes of the rapidly revolving hind wheel. He was thrown violently from his position into the road. On recovering from the shock he found he could not stand. Was then brought to the hospital.

State on admission.—The left leg lay slightly flexed, with considerable displacement of the knee inwards (abduction of leg on thigh). On the front and inner side of the "knee" there was a rounded prominence, smoothish to the touch, and evidently being the lower cartilaginous end of the shaft of femur. Below and to the outer side of this prominence could be felt the patella and its ligament in normal relation to the tubercle of the tibia. On each side of the patella could be felt the articular ends of the femur and tibia in normal relation to one another; the knee-joint was evidently uninjured. The lower end (epiphysis) of femur was apparently projecting into popliteal space, but it could not be felt. The whole knee-joint, including the epiphysis of femur, was displaced outwards and backwards; the upper fragment (shaft) was displaced forwards and inwards.

On manipulation it was found that the leg could be abducted on thigh considerably; so far, indeed, that the leg could be brought to a right angle with the thigh. The flexion of leg was likewise excessive, so that the leg could be brought nearly parallel to thigh (in extreme flexion).

Some indistinct crepitus was felt during manipulation. Patient has genu valgum on the other side.

Treatment.—The reduction of displacement was effected with considerable difficulty; the means which proved ultimately successful was traction, with the limb in the flexed position and the hand behind the head of tibia, combined with gentle manipulation of the projecting end of shaft. In this way the deformity was entirely reduced. The limb was placed on a Liston back splint in gently flexed position, and an ice-bag applied to knee.

April 10th.—A trace of deformity has reappeared; the rounded projection of lower end of femur (shaft) can be felt, but is very slight compared with yesterday. There is some effusion into knee-joint.

11th.—The Liston back splint was removed, and a "long outside" substituted, with American extension of 4 lbs.

17th.—Effusion into knee-joint subsided. Fragments keep in good position.

May 12th.—Long outside taken off. There is no trace of the original deformity; and, further, the genu valgum seems to have improved considerably, this limb being now much straighter than the other.

25th.—The patient was presented. The movements are nearly perfect, the patient being able to flex his knee nearly to a right angle.

Remarks.—Separation of the lower epiphysis of the femur is a rare accident, at least, if one may judge from the number of cases reported. Both Erichsen and Bryant merely mention the fact that the accident may occur, the latter author figuring a preparation in Guy's Museum. The information in Holmes' 'System of Surgery' is as meagre. Hamilton, in his work on 'Fractures and Dislocations,' states that he has only heard of five cases of the accident, and has never met with one in his own practice; they are as follows:

1. A boy of 11, whose leg was buried in the earth as high as the knee, fell forwards; the epiphysis was separated; the shaft of the femur was projected into the popliteal space, whilst the epiphysis was tilted forwards. The limb was amputated (M. Coural).
2. Mad. Lachapelle records a case where the accident was produced during birth of a child by traction on its foot. At the same time there was separation of upper epiphysis of tibia. Death.
3. Dr. Little in 1865 had such a case. A boy of 11 was hanging on the back of a waggon, and caught his right leg in the spokes of the wheel. The upper fragment projected through a wound in the upper and outer part of popliteal space. This was reduced under an anæsthetic and placed on doubly inclined plane, but much difficulty was experienced in keeping it in position; this was ultimately accomplished by keeping limb in extreme flexion. Secondary hæmorrhage occurred from anterior tibial on the thirteenth day, and the limb was amputated.
4. Dr. Voss recorded a case at the same time where amputation was performed.
5. A case in the practice of Dr. Hugh Walsh, of Fordham. A boy, aged 14 years: the accident occurring in the same way as No. 3.

Beyond these five I have not been able to find any cases of this accident; all these (excluding No. 2) appear to have been compound, and to have been followed by amputation of the limb. In those cases in which it has been recorded, the end of the shaft projected backwards in the popliteal space, thus differing from the case included in these Reports. This is presumably to be accounted for by the different manner in which the accident occurred; the case which most resembles the one under consideration is that of Dr. Little (No. 3); here the boy was *hanging* on to the back of a waggon, and one may assume that *his face was directed towards the waggon*, consequently, after his leg had been caught in the wheel it would be dragged first upwards and then forwards: in this way it is easy to understand how the epiphysis would be separated, and the lower end of the shaft left projecting backwards into popliteal space. On the other hand, the boy S——, when he met with his accident, was sitting on the hind rail of a cab, with his *back towards the vehicle*; the foot, becoming entangled in the spokes of wheel, probably acted as one end of a lever, the lever being formed by the lower leg, pressed upwards against a fulcrum formed by some portion of the hind rail or the spring; in this way the epiphysis would be dragged backwards, leaving the shaft of femur to project forwards (and inwards).

In M. Coural's case (No. 1) the reason for the backward projection of the femur is still more evident.

Since writing the above, I have found a case of separation of lower epiphysis which in many points resembles the case of S——. It occurred, in a boy æt. 15, the subject of hæmorrhagic diathesis, who was in St. Thomas's, under Mr. Simon, in 1875. The fracture was caused by the boy stumbling while running up hill, and falling with his leg doubled up under him. In this case the end of shaft projected forwards, and the treatment which was most effective was a back splint, with the limb in flexed position.

DESCRIPTION OF PLATES VII AND VIII,

Illustrating Mr. Sheppard's Paper.

PLATE VII.

Illustrating Case 5.—Lymphadenoma.

Fig. 11 represents the tumour surrounding the rectum.

T = Tumour. S = Skin. A = Anus.

Fig. 12.—Section of dorsal tumour, magnified.

m = Muscular fibres cut across.
l = Connective tissue infiltrated with round cells.

Fig. 13.—Section of pelvic tumour, partly pencilled.

r = Reticular lymphoid stroma.
c = Corpuscles.

PLATE VIII.

Illustrating Case 9.—Separation of lower epiphysis of femur.

F = Extremity of shaft of femur separated from epiphysis.
P = Patella.

Plate VII.

Fig 13.

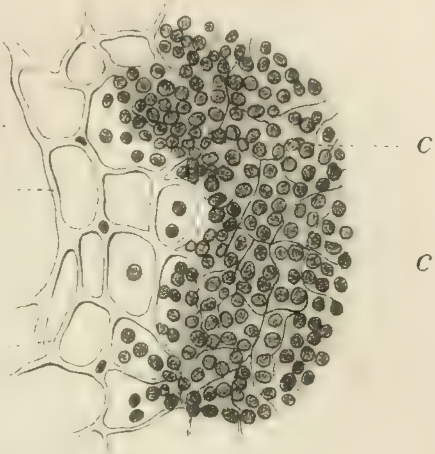

Fig 11.

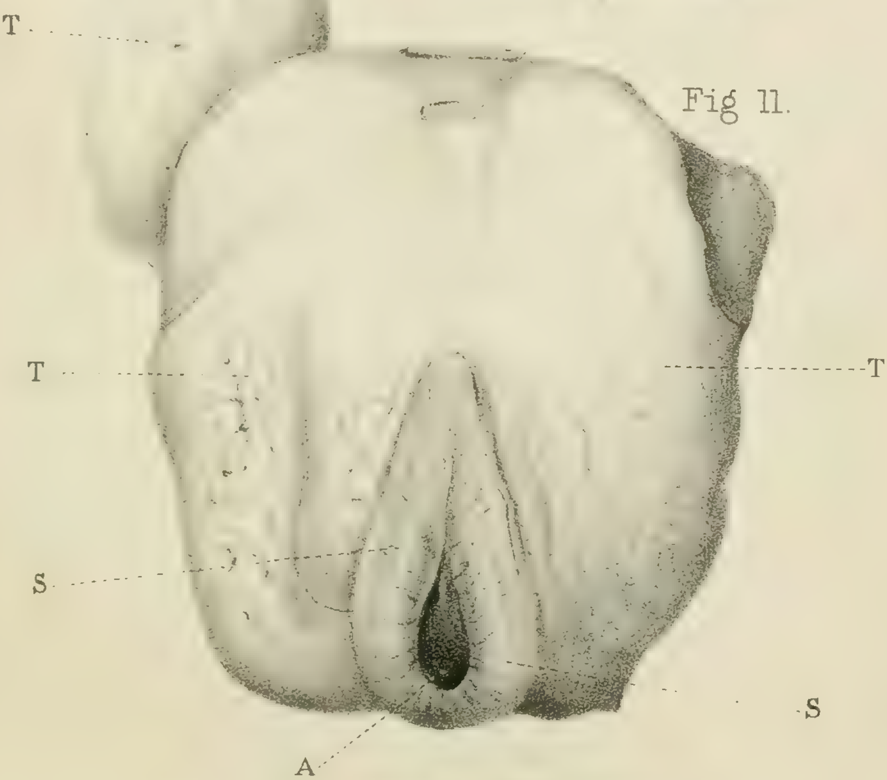

Fig 12.

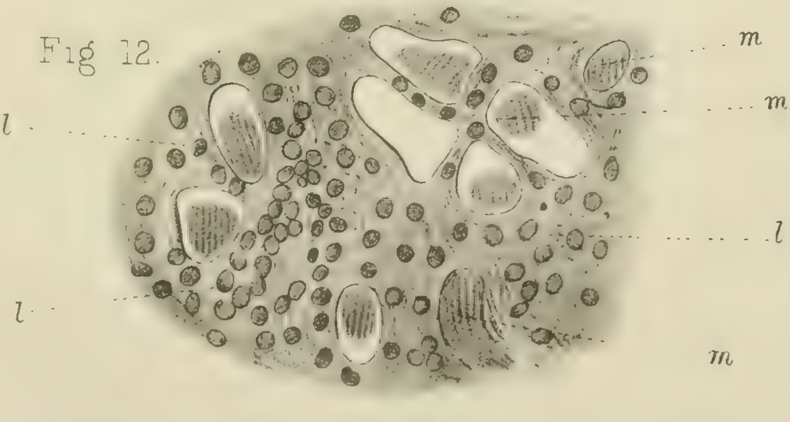

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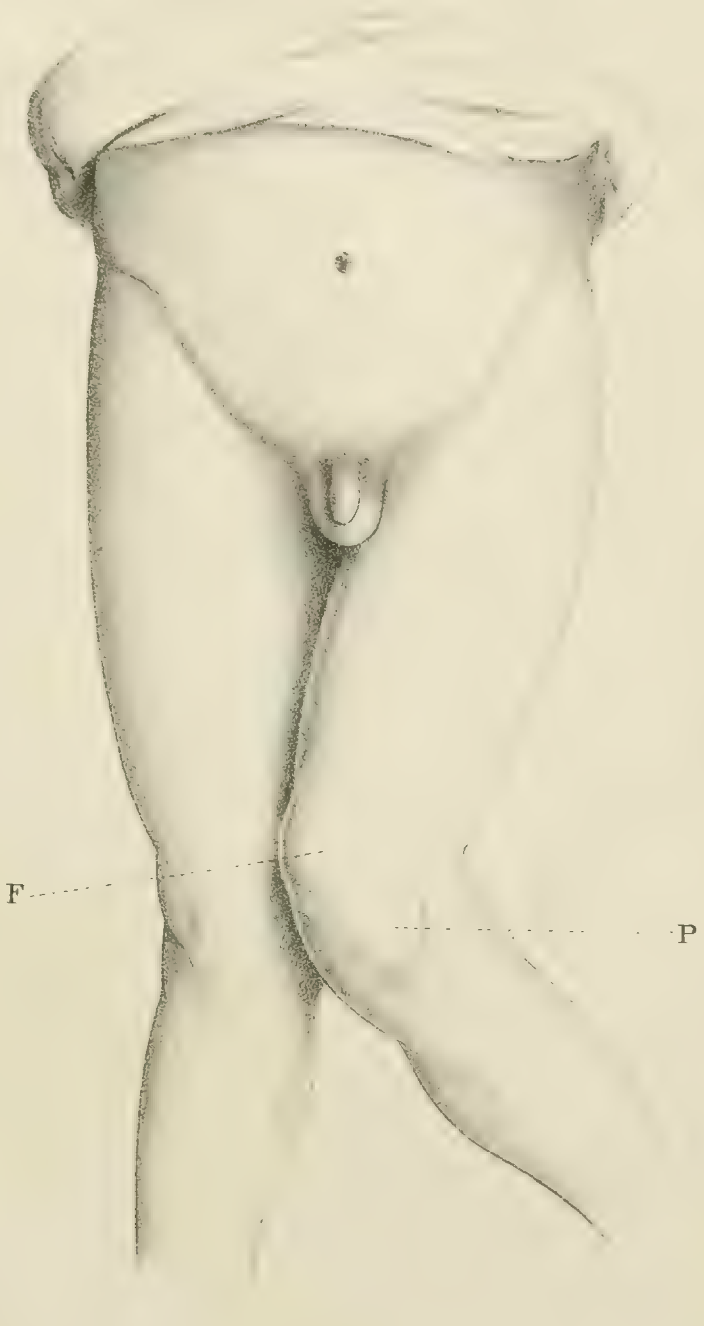
Plate VIII.



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MEDICAL AND SURGICAL REPORTS,

1876 AND 1877.

MEDICAL REPORT.

1876.

BY T. CRANSTOUN CHARLES, M.D., M.Ch., F.C.S.

TABLE I.—GENERAL STATEMENT.

	Males.	Females.	Total.
Number of patients in Medical Wards, Jan. 1st, 1876	61	70	131
„ „ Dec. 31st, 1876	63	73	136
Number of patients discharged or died during the year 1876:			
Cured	332	361	693
Relieved	182	168	350
Unrelieved or other causes	53	50	103
Died	151	105	256
Transferred to surgical wards	5	7	12
Total	723	691	1414

TABLE II.—*General Table of Diseases.*

DISEASE.	Number of cases.			Age.			Cured		Relieved		Unrel. or other causes		Died.		Average number of days in hospital.	Mortality per cent.	REMARKS, COMPLICATIONS, &c.
	Total.	M.	F.	Average.	Youngest.	Eldest.	M.	F.	M	F	M	F.	M	F			
I. **SPECIFIC FEBRILE DISEASES.**																	
Rötheln (epidemic roseola)	2	2	...	24	...	...	2	...	...	...	...	...	...	...	7	...	1 had measles and scarlatina previously, 1 a medical student.
Rubeola	15	10	5	11	½	40	10	4	...	...	...	...	...	1	13·4	...	7 from Alice and Victoria wards; 1 a "sister," 5 medical students, 1 a second attack. The death was due to broncho-pneumonia with collapse of lung.
Variola	20	14	6	20	¾	36	11	6	...	...	...	...	3	...	17	15	16 had vaccine marks, 1 originated in the hospital.
Varicella	3	2	1	6	3	8	2	1	...	...	...	...	...	...	17		
Scarlatina	38	20	18	11	¾	31	19	18	...	...	...	...	1	...	33	2·4	The majority of the cases came from Lambeth, 2 originated in hospital. Fatal case: old heart disease and recent acute nephritis. (See Abstract.)
Sequelæ of scarlatina	21	13	8	5½	3¼	12	11	8	...	...	...	...	2	..	33		
Hooping-cough	2	1	1	3¼	1½	5	1	...	...	...	...	1	...	...	20		
Typhus	4	3	1	38	25	55	2	1	...	...	...	...	1	...	31	25	1 was a surgical patient admitted to Leopold ward seven days previously.
Enteric fever	42	22	20	20	3¼	47	18	17	...	...	...	...	4	3	43	16·6	2 originated in hospital, 1 was a second attack, 1 after scarlatina, 3 were very mild, and 6 were doubtful.
Febricula	11	7	4	15	3	30	7	4	...	...	...	...	...	...	13	...	2 cases originated after contagion, 1 was complicated with incipient phthisis and congestion of bases of both lungs, 1 case resembled enteric, and 1 rheumatic fever.
Influenza (?)	2	...	2	19	15	24	...	2	...	...	...	...	...	...	16	...	1 originated in hospital. Catarrh, cough, fever, but no prostration, in both.

Remittent fever	2	2	...	43	36	50	2	...	...	...	...	...	...	...	22	...	1 from West and other from East Indies. 1st, chiefly dysenteric diarrhœa; 2nd, complicated with congestion of liver, spleen, and kidneys, hæmatemesis, melæna, pneumonia, and right pleurisy.
Intermittent fever	8	7	1	32	15	55	7	1	...	...	...	...	...	...	29	...	4 had resided in tropical regions; 2 tertian, 2 quotidian, rest irregular in type.
Diphtheria (membranous croup)	5	2	3	6	½	22	...	1	...	...	...	...	2	2	46	80	1 case remained 217 days; average duration of rest four days. Tracheotomy in 2 cases. The fatal cases were children.
Syphilis	9	4	5	24	3 wks.	43	...	...	3	2	...	1	1	2			
Pyæmia	2	1	1	36	25	48	...	...	...	...	...	...	1	1	7½	100	Short abstracts given.
Septicæmia	2	2	...	31	29	33	...	...	...	...	...	...	2	...	7	100	Ditto.
Glanders (?)	1	1	...	...	22	...	...	...	...	...	...	...	1	...	...	...	Ditto.
II. Diseases of the Skin.																	
Erysipelas	24	13	11	37	11	61	11	11	...	...	...	...	2	...	25	8	In 1 fatal case the axilla was first affected, in the other the face and head. In 3 the leg was affected, in the rest the face.
Erythema	1	1	...	24	...	...	1	...	...	...	...	...	...	...	54	...	Complicated with splenic tumour and ascites.
„ nodosum	3	...	3	19	10	27	...	3	...	...	...	...	...	...	39	...	In each there had been rheumatic fever. The complications were—febricula in 2, anæmia in 3, rheumatic pains in 2, and epilepsy in 1.
Urticaria	1	...	1	19	...	...	...	1	...	...	...	...	...	...	3		
Herpes	1	...	1	15	...	...	...	1	...	...	...	...	...	...	9		
Eczema rub.	1	1	...	65	...	...	...	...	1	...	...	...	...	...	6		
„ chr.	4	...	4	37	17	60	...	2	...	2	...	...	...	...	63		
Hydroa	1	1	...	7	...	...	1	...	...	...	...	...	...	...	32		
Psoriasis	2	1	1	37	32	43	1	...	...	1	...	...	...	...	37	...	1 probably syphilitic—said to have been caused by green paint.
Lepra tub.	1	1	...	27	...	...	...	...	1	...	...	...	...	...	77		
Melanoderma	1	1	...	26	...	...	...	...	...	...	1	...	...	...	55	...	Brown discoloration of skin, occurring in patches; pigmentation of mucous membrane of palate; frequent vomiting and pain in back; syphilis seven years ago; never ague.
Scabies	1	1	...	13	...	...	1	...	...	...	...	...	...	...	24		
Ulcer of leg	1	...	1	43	...	...	...	1	...	...	...	...	...	...	26		

TABLE II—*continued.*

DISEASE.	Number of cases.			Age.			Cured.		Relieved.		Unrel. or other causes		Died.		Average number of days in hospital.	Mortality per cent.	REMARKS, COMPLICATIONS, &c.
	Total.	M.	F.	Average.	Youngest.	Eldest.	M.	F.	M.	F.	M.	F.	M.	F.			
III. DISEASES OF THE RESPIRATORY ORGANS.																	
Nasal catarrh	4	1	3	20	16	30	1	2	...	1	...	...	...	...	13	...	Incipient phthisis in 1.
Acute laryngitis	2	2	...	2¾	1¼	4	...	...	...	...	...	...	2	...	2	...	In 1 there was swelling of tonsils and inflammatory œdema each side of pharynx; it was regarded as diphtheria during life, but no membrane was found post-mortem. The mucous membrane, however, of larynx and trachea was injected, also hæmorrhage into trachea, and enlargement of solitary glands of intestine.
Syphilitic laryngitis	6	3	3	36	23	65	1	1	2	1	...	...	...	1	48	...	Tracheotomy was performed in 3 of these cases, 1 of which died; death was due to the slipping out of the india-rubber tube during a fit of coughing. Of the other 2, 1 was of a doubtful nature, nothing being seen with the laryngoscope to account for the symptoms of dyspnœa. On opening the trachea, however, about 2 oz. of pus welled out of the wound.
Malignant disease of larynx	1	1	...	54	...	...	...	...	...	...	...	...	1	...	190	...	The submaxillary glands were also involved; complications pleurisy, bronchitis, extreme atheroma of aorta, with saccular dilatations. Tracheotomy gave great relief.
Hæmoptysis	7	5	2	26	16	43	2	1	3	1	...	...	...	...	25	...	5 were probably incipient phthisis.
Phthisis	91	54	37	29	7	61	...	1	18	18	3	1	34	16			
Capillary bronchitis	3	3	...	2¼	⅓	3	2	...	...	...	...	...	1	...	62	...	Fatal case, æt. 4 months; 1 after measles.
Acute "	16	8	8	24	2	43	7	5	1	2	...	...	...	1	22	6	Death occurred on day of admission. Commencing tubercular deposit was found in the lung.

Chronic "	31	15	16	47	6	72	5	6	6	6	4	4	…	…	30		
Broncho-pneumonia	20	8	12	27	1	70	1	8	2	2	…	…	5	2	19	35	
Acute pneumonia—																	
Right	17	13	4	23	1¼	56	10	3	1	…	…	…	2	1	20	…	See Abstract.
Left	7	6	1	13	3	32	6	1	…	…	…	…	…	…	20		
Double	17	10	7	21	¾	47	8	4	…	…	1	…	1	3	31		
Pleuro-pneumonia	10	7	3	30	19	59	7	3	…	…	…	…	…	…	22		
Pleurisy	11	7	4	30	6	54	5	3	2	1	…	…	…	…	32		
Empyema	11	10	1	33	6	60	4	1	3	…	1	…	2	…	50	18	
Emphysema	4	4	…	62	50	82	…	…	1	…	1	…	2	…	50	…	They were all complicated with chronic bronchitis, dropsy, and albuminuria. In 1 of the fatal cases (æt. 52) there was hypertrophy and dilatation of all the cavities of the heart without valvular disease; also induration of the kidneys. In the other fatal case (æt. 50) there was also cardiac disease.
Abscess of lung	1	1	…	17	…	…	…	…	…	…	…	…	1	…	3	…	Left inferior lobe: perforated left pleura—empyema, collapse of lung, perforation of diaphragm.
Cancerous tumour of thorax	1	1	…	72	…	…	…	…	…	…	…	…	1	…	13	…	Pleuritic effusion left side. The new growth involved left pleura, infiltrated the lung, heart, liver, and peritoneum; one kidney of cartilaginous consistence.
IV. DISEASES OF THE VASCULAR SYSTEM.																	
1. *Heart.*																	
Pericarditis	1	1	…	14	…	…	1	…	…	…	…	…	…	…	23	…	Six weeks convalescent from a third attack of rheumatic fever, associated with mitral systolic murmur.
Atrophy	1	…	1	35	…	…	…	…	…	…	…	…	…	1	8	…	Ill twelve months; constant diarrhœa (often twenty motions daily) for two months, frequent attacks of dyspnœa, emphysema of lungs, atrophy of liver, gall-bladder distended and containing gall-stones, one kidney small and granular.
Fatty degeneration	1	…	1	52	…	…	…	…	…	…	…	…	…	1	14	…	Eight children and seven miscarriages. For last four years attacks of vomiting, diarrhœa, and melæna. Great debility, palpitation, syncopic attacks; anæmia, vomiting, systolic bruit at apex and base, cardiac impulse weak, pulse irregular and intermittent, large fatty liver.

TABLE II.—*continued.*

DISEASE.	Number of cases. Total	M.	F.	Age. Average.	Youngest.	Eldest.	Cured M.	F.	Relieved M.	F.	Unrel or other causes M.	F.	Died M.	F.	Average number of days in hospital	Mortality per cent.	REMARKS, COMPLICATIONS, &c.
Dilatation	1	1	...	12	...	...	...	...	1	...	...	...	...	...	...	...	With bronchitis and dropsy.
Malformation	3	2	1	19	4	39	...	...	...	...	...	...	2	1	72	...	2 cyanotic.
Palpitation (exophthalmic goître)	1	...	1	24	...	...	...	...	...	...	...	...	...	1	49	...	See Abstract.
2. *Valvular Disease.*																	
Aortic	18	14	4	40	14	63	...	...	7	3	1	...	6	1	45	38·8	
Mitral	44	22	22	35	12	60	...	...	15	14	2	3	5	5	33	24·4	
,, and aortic	28	21	7	36	15	59	...	...	9	3	1	...	11	4	22	53·6	
3. *Vessels.*																	
Aneurism	5	5	...	46	41	50	...	...	1	...	1	...	3	...	113	...	Fatal cases: (1) Æt. 42, atheroma of aorta with dilatation, aneurism of arch, 3rd stage, ruptured into œsophagus; died on day of admission. (2) 50, pain first felt in 1870, tumour in 1871; no murmur; aneurism of thoracic aorta, opening anteriorly through skin. (3) 50, sudden pain and dyspnœa twenty-two months before death; 2nd attack eighteen months after; no murmur; aneurism of descending portion of thoracic aorta opening into left pleura.
Phlebitis	1	1	...	58	...	...	...	...	1	...	...	...	...	...	58	...	Left femoral vein.
Hæmorrhoids	1	1	...	35	...	...	1	...	...	...	...	...	...	...	28	...	Combined with extreme anæmia from loss of blood.

4. *Diseases of Ductless Glands and Blood.*																	
Anæmia	2	...	2	24	21	27	...	1	...	1	...	...	...	...	46	...	Venous and hæmic murmurs in both, with œdema and palpitation.
Leucocythæmia	4	1	3	35	17	63	...	...	1	2	...	...	...	...	73		
V. DISEASES OF THE DIGESTIVE ORGANS.																	
1. *Alimentary Canal.*																	
Tonsillitis	15	3	2	25	20	30	3	2	...	...	...	...	...	...	14		
Stomatitis and ulceration of mouth	2	...	2	21	21	36	...	1	...	1	...	...	...	...	15	...	The stomatitis the result of salivation. Sore throat with perforating ulcer of hard palate (syphilitic).
Ulcer of stomach	3	...	3	33	22	54	...	2	...	...	...	...	...	1	11	...	(1) Doubtful; (2) great hæmatemesis, anæmia, and hysteria; (3) 54, cough, pain in stomach radiating to back, especially after food; occasional vomiting, hæmatemesis, slight anasarca, emaciation, rhonchus, slight crepitation, &c., left back. P.M.—Rounded ulcer $1\frac{1}{4}$ inch in posterior wall of stomach, close to cardiac orifice, perforation prevented by adherent pancreas and liver; chronic fibroid degeneration of lungs with cretaceous nodules in upper lobes; lower lobes adherent.
Catarrh of stomach	3	...	3	36	21	45	3										
Hæmatemesis	6	...	6	30	18	49	...	3	...	2	...	...	...	1	19	...	The death occurred on day of admission. P.M.—Slight emphysema, 2 oz. of blood in stomach, typhoid (?) ulcers in intestine, liver congested.
Dyspepsia	20	5	15	34	18	47	3	7	1	6	1	2	...	...	20	...	3 cases alcoholic dyspepsia, average age 40; 4 cases nervous vomiting, average age 19; suspected ulcer in 3; great anæmia in 2.
Cancer of stomach	5	2	3	52	39	66	...	...	...	1	...	...	3	1	22	...	See Abstract.
Diarrhœa	8	2	6	24	$1\frac{3}{4}$	45	1	3	1	1	...	2	...	...	20		
Dysentery	2	2	...	29	24	35	2	...	...	...	...	...	...	...	105	...	1 associated with diabetes insipidus, the other with hepatic abscess.
Colic, &c.	6	5	1	39	16	60	4	...	...	1	1	...	...	...	15	...	1 arseno-plumbic, 1 biliary colic, 1 enteritis; 2 chiefly abdominal pain.

TABLE II—*continued.*

DISEASE.	Number of cases.			Age.			Cured		Relieved		Unrel or other causes		Died		Average number of days in hospital.	Mortality per cent.	REMARKS, COMPLICATIONS, &c.
	Total.	M.	F.	Average.	Youngest.	Eldest.	M.	F.	M.	F.	M.	F.	M.	F.			
Constipation	7	1	6	22	12	40	1	5	...	1	...	...	...	...	19		
Fæcal obstruction	5	3	2	27	12	58	2	1	...	...	...	...	1	1	9	...	Symptoms acute. Currants caused the obstruction in 1, impacted fæces in 2; peritonitis occurred in 3, and proved fatal in 2, in the latter no cause of obstruction was found p.m.
Tænia	1	1	...	28	...	...	...	...	...	...	1	...	...	...	1		
Cancer of rectum	3	2	1	43	30	67	...	...	...	...	...	...	2	1	20	...	Peritonitis occurred in each case.
2. *Peritoneum.*																	
Tubercular peritonitis	4	4	...	13	7	31	...	...	1	...	1	...	2	...	70	...	Tubercle of lung, 1 cured, 1 died; no p.m. In the other fatal case (31) twelve pints purulent fluid in abdomen; viscera free from tubercle, but there was general adhesion of pleuræ.
Acute "	7	2	5	34	10	71	1	4	...	...	...	...	1	1	20	...	5 local. Caused by exposure in 1, by abortion in 1, and by vaginitis, &c., in 1. Fatal cases: (1) 18, blow on right groin five years ago; six weeks ago pain and swelling in right groin, constipation, and vomiting. P.M.—Abscess round vermiform appendix, perforation and strangulation of bowel. (2) 48, F., died day after admission; subject to menorrhagic pain, vomiting, diarrhœa. P.M.—Cystic tumour left broad ligament, chronic intermittent nephritis, fatty liver.
Dropsy	3	1	2	31	10	44	...	1	1	1	...	...	...	...	20	...	1 probably due to debility, the other to cirrhosis of liver (?), and the third a case of acute dropsy of peritoneum.

3. *Liver.*																	
Congestion	1	...	1	48	...	...	...	1	...	...	...	...	...	...	23	...	Associated with diseased mitral valve.
Jaundice	3	1	2	33	16	64	1	1	...	...	...	...	...	1	29	...	P.M. of fatal case (64) refused; the other 2 probably catarrhal.
Abscess	2	2	...	25½	23	28	1	...	...	...	...	...	1	...	24	...	Both had resided in India; 1 complicated with dysenteric ulceration of bowels and broncho-pneumonia (fatal), the other with epileptiform attacks.
Hydatid	4	3	1	33	29	38	2	...	1	...	...	...	...	...	54	...	Tapping repeatedly performed in the 4 cases. In 1, in which suppuration had occurred, the sac was injected with $ZnCl_2$, &c., and a drainage-tube introduced. Fatal case: cyst right lobe of liver, suppuration, hæmorrhage into sac, compression right lung, cysts in omentum and peritoneum.
Enlarged liver . . .	4	4	...	29	16	43	...	...	...	...	2	...	2	...	41	...	(1) Tropical; spleen also enlarged. (2) Amyloid. Æt. 29. Good health till six weeks before admission; then dysentery, &c.; died eight days after admission. P.M.—Amyloid degeneration of liver, kidneys, intestines; lungs adherent and emphysematous. (3) Necrosed bone and amyloid liver and spleen. (4) Æt. 43. Syphilis twenty years ago; syphilitic ulceration of larynx, necrosis of occipital bone, syphilitic disease of liver; irregular thickening of capsule, deep fissures, &c.; chronic induration of spleen and kidneys; acute meningitis.
Cirrhosis	18	14	4	40	19	60	2	...	7	1	1	...	4	3	50	39	
Cancer	11	6	5	52	42	58	...	...	1	...	2	...	3	5	43		
4. *Tumours, &c.*																	
Abdominal tumours . .	13	2	11	43	14	60	...	1	...	3	1	6	1	1	34	...	1 Phantom tremor (cured); 1, æt. 65, cancer of omentum with senile atrophy of kidneys, abdomen containing thirteen pints reddish, turbid fluid; 3 probably uterine; 1 probably abscess opening into intestine; 1 probably due to scybalæ; 2 probably malignant disease of omentum; and 1 malignant disease of pancreas.

Table II—*continued.*

DISEASE.	Number of cases.			Age.			Cured.		Re-lieved.		Unrel. or other causes		Died.		Average number of days in hospital.	Mortality per cent.	REMARKS, COMPLICATIONS, &c.
	Total.	M.	F.	Average.	Youngest.	Eldest.	M.	F.	M.	F.	M.	F.	M.	F.			
Cancer of spleen	1	...	...	61	...	...	...	...	...	...	...	...	1	...	3	...	Ill two years; spleen of great size and adherent to surrounding organs; stomach invaded by new growth, also lymphatic glands of thorax and abdomen. Complicated with stenosis of mitral valve and hypertrophied right ventricle.
Enlarged spleen	1	...	...	41	...	...	...	...	1	...	...	...	...	...	33	...	Spleen extended into pelvis. Patient had suffered from syphilis, intermittent, and dysentery.
Abdominal injury terminating in artificial anus at umbilicus	1	1	...	7	...	...	...	...	...	...	1						
VI. DISEASES OF THE GENITO-URINARY ORGANS.																	
1. *Kidneys.*																	
Acute nephritis	4	3	1	27	10	35	...	1	1	...	...	...	2	...	32	...	Fatal cases: (1) 35, first attack; heart sounds reduplicated at base and apex, no murmur. Complications, pneumonia and pleurisy. (2) 16, general œdema, effusions into joints, high fever, pneumonia, and pleurisy.
Chronic Bright's disease	44	25	19	36	7	73	1	2	13	8	2	2	8	8	34	...	Six of these were readmissions, thus reducing the total to 38. 2 doubtful cases are included in which there was anasarca, without albuminuria, &c. Of the remaining 36, 7 were probably fatty, 13 large white, 2 amyloid, and 14 granular kidney. A P.M. was obtained in 13 of the fatal cases. See Abstract.

Atrophy	1	...	1	46	...	...	...	...	...	...	...	...	...	1	46	...	Urine albuminous, pus, granular casts; colic, anæmia, anasarca, erysipelas of face, broncho-pneumonia; no cardiac hypertrophy.
Pyelitis	2	1	1	26	12	41	...	...	1	1	...	...	...	...	12	...	The case of the child was strumous; the other was complicated with hydatid of liver.
Hæmaturia	1	1	...	8	...	...	...	...	1	...	...	...	...	...	26		
Diabetes	4	2	2	37	15	54	...	...	1	1	1	1	...	...	78	...	See short Abstract.
2. *Bladder.*																	
Cystitis	2	...	2	26	21	31	...	2	...	...	...	...	...	...	36		
Cancer	2	1	1	54	52	56	...	...	...	1	...	...	1	...	27	...	Fatal case: secondary growths in glands of neck and pelvis, also in skin, heart, and supra-renals; contracted granular kidneys, thrombosis of right external iliac vein, gouty deposits in joints.
VII. DISEASES OF THE ORGANS OF LOCOMOTION.																	
Acute rheumatism	115	64	51	24	8	58	54	47	6	6	...	...	1	1	35	1·74	Fatal cases: (1) F., 17, second attack; peri- and endocarditis, and pleuro-pneumonia. (2) M., 22, first attack: endo- and pericarditis, and double pneumonia.
Subacute ,,	58	28	30	26	5	47	24	27	4	3	...	...	...	...	26		
Chronic ,,	12	6	6	36	22	63	3	3	3	3	...	...	...	...	25	...	Albuminuria in 1, cardiac hypertrophy and hæmoptysis in 1, anæmia and tricuspid disease in 1.
Gonorrhœal ,,	4	4	...	29	20	43	2	...	2	...	...	...	...	...	24		
Muscular ,,	3	1	2	32	10	57	...	1	...	1	1	...	...	...	33	...	(1) Rigidity of hamstrings and muscles of calf. (2) Acute muscular rheumatism, the leg chiefly affected. (3) Myalgia of soles of feet.
Acute rheumatic arthritis	1	1	...	45	...	...	...	...	1	...	...	...	...	...	32		
Chronic ,,	3	1	2	45	34	52	...	...	...	1	1	1	...	...	25		
Gout	17	13	4	43	28	63	6	2	4	1	3	...	...	1	33	...	The death (F. 40) was a case of chronic gout with aortic disease; granular contracted kidney with cysts, and chronic rheumatic arthritis. Three other cases were also chronic. Of the acute cases, 1 was associated with syphilis and gonorrhœa, 1 with chronic Bright's disease, plumbism, and lepra, 1 with severe neuralgia, 1 with mitral disease and albuminuria, and 1 with mitral disease alone.
Rickets	2	1	1	2	1	3	...	...	1	1	...	...	...	...	40	...	1 case associated with convulsions and impaired motor power of right arm and leg, the other with erythema nodosum.
Pseudo-hypertrophic paralysis	1	1	...	7	...	...	...	...	...	...	1	...	...	...	67	...	See special Abstract.

TABLE II—*continued.*

DISEASE.	Number of cases.			Age.			Cured.		Re-lieved		Unrel. or other causes		Died.		Average number of days in hospital.	Mortality per cent.	REMARKS, COMPLICATIONS, &c.
	Total.	M.	F.	Average.	Youngest.	Eldest.	M.	F.	M.	F.	M.	F.	M.	F.			
VIII. DISEASES OF THE NERVOUS SYSTEM.																	
1. *Brain.*																	
Acute meningitis	1	1	...	28	...	...	...	...	...	...	...	...	1	...	1	...	Convex surface of cerebrum and cerebellum. Brought into hospital unconscious and died next day.
Tubercular ,,	4	3	1	16	11	23	...	...	...	...	...	...	3	1	16	100	
Chronic hydrocephalus	1	...	...	6¾	...	...	...	...	1	...	...	...	...	...	96	...	Subject to fits; took measles in hospital.
Concussion of brain	2	2	...	17	3	31	2	...	...	...	...	...	...	...	48	...	Cerebral symptoms after concussion; headache, vertigo, impairment of special senses, &c.
Apoplexy	5	1	4	52	44	65	...	...	...	...	...	...	1	4	5	...	See Table VIII. This only includes fatal cases in which a P.M. was performed, the rest will be found under Hemiplegia.
Cerebral abscess	2	2	...	25	11	39	...	...	1	...	...	...	1	...	11	...	1 case doubtful—cerebral symptoms with otorrhœa; for the other case see short Abstract.
Right hemiplegia	16	11	5	43	28	65	3	1	6	2	2	...	...	2	72	12·5	
Left ,,	16	6	10	44	2½	80	1	...	3	4	1	2	1	4	39	31·2	See Tables. The fatal cases were all, directly or indirectly, the result of embolism.
Transient ,,	3	2	1	42	16	57	2	1	...	...	...	...	...	...	5		
Mental diseases	6	5	1	21	4	52	1	...	...	...	4	1	...	...	18	...	1 mental aberration, 3 commencing insanity, 1 idiocy.
Hypochondriasis	2	2	...	39	22	56	1	...	1	...	...	...	...	...	31		
Vertigo	1	1	...	32	...	...	1	...	...	...	...	...	...	...	3	...	Probably the result of gaseous exhalations.
Nervousness	2	2	...	34	27	42	1	...	1								

Epilepsy	20	7	13	28	4	44	1	2	5	5	1	5	...	1	11	...	3 cases probably of syphilitic origin; 4 were cases of first attack in adults. Fatal case, æt. 25, status epilepticus; died three days after admission. In left corpus striatum a few small white points; brain substance soft, increase of subarachnoid fluid, serum in ventricles; fatty degeneration of heart, great enlargement of spleen.
Convulsions	3	2	1	23	1⅙	57	1	...	1	...	...	...	...	1	7		
Chorea	26	8	18	14	4½	20	4	10	2	6	1	2	1	...	51	...	One case, although it presented points of resemblance to chorea, was not true chorea. In nearly half the cases there was a family history of rheumatism. 5 of the cases had rheumatic fever and 2 scarlatina. Fright was the exciting cause in 8; the left side was directly affected in 6, and the right in 4; paraplegia occurred in 1, and hemiplegia in 2; there was a cardiac murmur in 4. The fatal case was due to pneumonia; temp. ran as high as 108·2.
Hysteria	9	...	...	25	13	49	...	6	...	3	...	...	...	...	48		
Clonic torticollis	2	1	1	45	38	51	...	1	1	...	...	...	...	...	32		
2. *Spinal cord.*																	
Paraplegia	13	9	4	36	21	52	1	2	5	1	1	1	2	...	76		
Locomotor ataxy	8	6	2	34	18	56	...	...	5	2	1	...	...	...	103	...	Duration—seven years in 3, four and a half years in 2, three years in 1, two years in 1, and six months in 1.
Infantile paralysis	1	...	1	21	...	...	...	...	...	1	...	...	...	...	36	...	Right side. Followed an attack of "brain fever" in infancy. Complicated with epilepsy.
Glosso-pharyngeal paralysis	1	1	...	34													
Multiple sclerosis	7	4	3	40	25	59	...	...	3	2	1	...	...	1	86	...	See Table IX. Three cases were greatly relieved under the action of KI, galvanism and conium; 2 others also relieved by strychnia.
Spinal irritation	1	...	1	18	...	...	...	1	...	...	...	...	...	...	12		
Progressive muscular atrophy	2	2	...	35	30	41	...	...	2	...	...	...	...	...	33	...	Arms and legs chiefly affected. One case associated with syphilis.
3. *Nerves.*																	
Facial paralysis	3	3	...	47	36	57	...	...	1	...	1	...	1	...	63	...	All 3 probably syphilitic; 2 affected the left facial, and 1 the right fifth. In this last case there was inflammation of the eye and ulceration of cornea, and later erysipelas of the same side of the face.

Table II—*continued.*

DISEASE.	Number of cases.			Age.			Cured.		Relieved.		Unrel. or other causes		Died.		Average number of days in hospital.	Mortality per cent.	REMARKS, COMPLICATIONS, &c.
	Total.	M.	F.	Average.	Youngest.	Eldest.	M.	F.	M.	F.	M.	F.	M.	F.			
Neuralgia	4	1	3	45	21	61	1	1	...	...	...	1	...	...	28	...	1 intercostal neuralgia (?), 1 after shingles, 1 abdominal, and 1 occipital.
Sciatica	6	3	3	46	27	62	1	1	2	1	...	1					
IX. POISONING.																	
1. *Alcoholic.*																	
Intemperance . . .	2	1	1	53	48	59	1	...	...	...	...	1	...	...	2		
Chronic alcoholism . .	7	6	1	20	23	49	...	...	6	...	...	...	...	1	12	...	In the fatal case there was fatty and cirrhotic liver, fatty degeneration of heart, early cirrhosis of kidneys, and ulceration of ileum. In one of the remaining cases there was enlarged liver, in 1 ulceration of stomach, and in them all dyspepsia.
Delirium tremens . . .	2	2	...	38	35	42	2	...	...	...	...	...	...	...	10	...	In one the patient had attempted to drown himself; the other was complicated with obstinate vomiting, and temporary paralysis of the external recti of both eyes.
2. *Plumbic.*																	
Colic	2	2	...	33	31	35	2	...	...	...	...	...	...	...	18	...	(1) 31, painter for fifteen years; blue line on gums; fourth attack. (2) 35, painter twenty years; subject to colic six years; heavy beer and gin drinker; seventh attack; each generally lasts seven to ten days. Blue line, constipation, &c., gouty pains in great toe.
Paralysis	4	4	...	52	43	53	1	...	1	...	1	...	1	...	56		

3. *Various.*																	
Chloroform and alcohol	1	1	...	21	...	...	...	...	...	...	...	...	...	...	2	...	11 of these cases of poisoning were suicidal, 5 accidental. A child, æt. 2, recovered after half a grain of morphia. In the fatal case death occurred three quarters of an hour after admission, and the P.M. showed autopsy of brain, and syphilitic patches in lungs and spleen; congestion of kidneys, &c..
Camphor liniment	1	1	...	35	...	...	1	...	...	...	...	...	...	...	13		
Aconite	1	...	1	45	...	...	...	1	...	...	...	...	...	...	1		
Opium	7	5	2	17	2	67	4	2	...	...	...	...	1	...	2		
Acet. of lead	2	1	1	21	3½	39	1	1	...	...	...	...	...	...	2½		
Oxalic acid	2	1	1	19	15	24	1	1	...	...	...	...	...	...	4		
Carbolic acid	1	1	...	20	...	...	...	...	...	...	...	...	1	...	1	...	Died five minutes after admission. P.M.—Mucous membranes of mouth and œsophagus whitened and bleached; epithelium detached in several places; mucous membrane of stomach red, soft, and partly detached, the surface being mammilated; congestion of trachea. All the fluids smelt strongly of carbolic acid.
Iodine (tinct.)	1	1	...	3	...	...	1	...	...	...	...	...	...	...	7		
Aniline compounds	1	1	...	39	...	...	1	...	...	...	...	...	...	...	16	...	Two and a half years in an aniline factory; headache, giddiness, metallic taste in mouth, gums swollen, tongue tremulous, attacks of sickness and vomiting, fits attended by loss of consciousness.
Stale fish	1	1	...	32	...	...	1	...	...	...	...	...	...	...	6		
Gaseous inhalations	1	1	...	32	...	...	1	...	...	...	...	...	...	...	15	...	Working in a sewer near chemical works. Sudden sensation of violent pain at pit of stomach, and tightness round head, followed by asphyxia.
X. SURGICAL, MISCELLANEOUS, &c.																	
Swallowing a coin	1	1	...	2½	...	...	1	...	...	...	...	...	...	...	3		
Disease of spine	6	3	3	16	3½	32	1	...	1	3	...	...	1	...	48	...	Fatal case: twist of neck two and a half years ago; caries of second cervical vertebra, amyloid liver, spleen, and kidneys, pleural adhesions; tuberculosis of pia mater at base of brain with delirium, paralysis right third nerve, &c. 2 were cases of angular curvature, 1 in lumbar, and 1 in lower part of dorsal region; in this last there was enlarged liver, dropsy, and albuminuria. 3 were caries: (1) 15, cervical vertebræ, enlarged liver, dropsy, albuminuria, hypertrophy of heart, systolic apex murmur. (2) 11, fifth dorsal vertebra, paraplegia, no loss of sensibility. (3) 32, lumbar vertebræ—abscesses in groin, over sacrum, &c., impaired sensibility of legs.

TABLE II—*continued.*

DISEASE.	Number of cases			Age.			Cured.		Re-lieved		Unrel or other causes		Died.		Average number of days in hospital.	Mortality per cent.	REMARKS, COMPLICATIONS, &c.
	Total.	M.	F.	Average.	Youngest.	Eldest.	M.	F.	M.	F.	M.	F.	M.	F.			
Hip disease	2	2	...	21	14	28	...	...	1	...	1	...	...	...	5		
Talipes equinus	1	...	1	18	...	...	...	...	...	...	...	1	...	...	11		
Injury to knee	1	...	1	4	...	...	...	...	...	...	...	...	...	...	39		
Dog-bite	1	1	...	21	...	...	1	...	...	...	...	...	...	...	2		
Perineal abscess	1	1	...	23	...	...	...	...	...	...	1	...	...	...	13		
Chronic abscesses	1	1	...	23	...	...	...	...	1	...	...	...	...	...	11		
Subpectoral abscess	1	...	1	56	...	...	...	...	...	...	...	...	...	1	21	...	Complications: broncho-pneumonic patches through both lungs, albuminuria, symptoms of pyæmia.
Abscess of abdominal wall	1	1	...	33	...	...	...	...	...	...	...	...	1	...	29	...	This probably discharged itself into the bowel. There was no enlargement of liver. No P.M.
Scrofulous abscesses	1	...	1	24	...	...	...	...	...	...	...	1	...	...	21	...	Of twenty-one years' duration. Waxy disease of kidneys, liver, and spleen.
Immersion	11	7	4	35	6	72	7	4	...	...	...	...	...	...	2	...	Three accidental, the rest suicidal. They occurred chiefly during the summer and autumn months. The 2 that happened in December followed a drunken fit.
Marasmus	2	2	...	$1\frac{1}{12}$	1	$1\frac{1}{6}$	...	...	1	...	...	...	1	...	55		
Inflammation of sublingual and submaxillary glands	1	1	...	21	...	...	1	...	...	...	...	...	...	...	11	...	Right side chiefly affected.
Debility	9	3	6	41	17	72	1	4	1	1	...	1	1	...	13	...	4 were cases of debility after acute disease; 1 nervous debility, with syncopic attacks; 1 senile decay (fatal) with atrophy of liver and cystic degeneration of kidneys; 1 was complicated with hysteria, 1 with chronic bronchitis, and 1 with chronic rheumatism.
No notes	1	...	...	36	...	...	...	...	...	...	...	...	1	...	...	...	Dead when brought in.

DISEASE.	Number of cases.	Age.			Cured.	Relieved.	Unrelieved or other causes.	Died.	Average number of days in hospital.	REMARKS, COMPLICATIONS, &c.
		Average.	Youngest.	Eldest.						
XI. FEMALE GENERATIVE ORGANS.										
1. *Uterus.*										
Leucorrhœa	7	38	18	56	5	2	...	...	41	In 2 there was slight dysmenorrhœa; in 1 suppressed menstruation, hysteria, endometritis, and anæmia; and in another, anæmia and enlarged liver.
Dysmenorrhœa . . .	7	25	20	34	6	1	...	...	35	In most of these the os was divided or scarified; 1 was a case of acute attack.
Menorrhagia & Metrorrhagia	8	38	19	62	7	...	1	...	47	Granular degeneration of os in 2, granular growth at fundus in 1, retroflexion in 1, leucorrhœa in 1, high fever (temp. averaging from 103° to 106°) for six days in 1.
Anteflexion	7	28	17	37	5	2	...	...	69	Cystitis in 1, leucorrhœa in 2, dysmenorrhœa in 4, pelvic cellulitis in 1, and menorrhagia in 1.
Retroflexion	10	36	25	49	7	3	...	...	47	Dysmenorrhœa in 3, menorrhagia in 1, cystitis and hæmaturia in 1.
Endometritis & Endocervicitis	9	33	28	38	8	1	...	...	58	Enlargement of uterus in 2, lateral flexion in 2, subovaritis and cystitis in 1, and menorrhagia and dysmenorrhœa in 2; 3 were cases in which the os and cervix were chiefly affected.
Prolapse	2	33½	23	44	1	1	...	...	49	In the case of cure part of the cervix was removed by galvanic cautery. For seven days after the operation the temp. varied between 99° and 104°.
Degeneration, &c., of cervix .	4	44	35	57	2	2	...	...	53	3 were cases of hypertrophy with ulceration of cervix, and 1 was a case of conical cervix with dysmenorrhœa and ovarian tumour.
Pelvic cellulitis . . .	5	36	23	52	5	...	...	...	112	3 occurred after difficult labour and 2 after injury; in 2 the abscess opened into rectum, in 1 into vagina, and in 3 the abscesses were tapped *per vaginam.*

TABLE II—*continued.*

DISEASE.	Number of cases.	Age			Cured.	Relieved.	Unrelieved or other causes	Died.	Average number of days in hospital.	REMARKS, COMPLICATIONS, &c.
		Average.	Youngest.	Eldest.						
Retro-uterine hæmatocele	3	39	39	40	2	1	...	...	57	In 2 the tumour discharged itself by the rectum and vagina.
Cancer of uterus	9	41	25	48	...	1	5	3	26	All these cases, with the exception of 1, were married, and the number of children averaged from 6 to 14; there was a family history of cancer in 1. Fatal cases: (1) 33, ulceration of cervix, os, and upper part of vaginal wall; no peritonitis. (2) 46, peritonitis, cystic kidneys, vesico-vaginal fistula, dilated ureters. (3) Single, 25, cancer of Fallopian tube and uterus, pelvic peritonitis; died seven months after first symptoms.
Cancer of cervix	13	42	30	53	4	9	...	...	32	All these women had borne from 3 to 9 children.
Uterine fibroid	13	40	30	59	7	3	...	3	45	1 of the deaths resulted from repeated hæmorrhages, the other 2 from peritonitis.
2. *Ovary.*										
Ovaritis, L.	1	34	...	...	...	1	...	...	37	
Ovarian tumour	7	49	36	59	...	4	...	3	20	There were really only 5 cases, as 2 were readmissions. Of the 5, 4 were transferred to the surgical side, and ovariotomy was performed on 3 (100 per cent. mortality), in each of which peritonitis set in. In 1 of the fatal cases there was cancer of the liver.
3. *Vagina, &c.*										
Ruptured perineum	2	33	32	35	2	...	...	...	165	
Vesico-vaginal fistula	6	24	20	28	3	...	1	2	91	Both deaths occurred after operation: 1 was due to peritonitis that appeared to have spread from an inflamed Fallopian tube; and the other to complications: pneumonia, tubercle, &c.
Labial cyst	2	25	5	46	2	...	...	...	22	

Caruncle of meatus	3	48	41	56	3	...	...	...	44	1 was complicated with chronic cystitis and vesico-vaginal fistula.
4. *Accidents of Pregnancy.*										
Hæmorrhage	2	31	30	33	1	...	...	1	19	1 occurred at fifth month, the other after an abortion at fourth; this proved fatal: remains of placenta in uterus, thrombosis of left ovarian vein, septicæmia.
Albuminuria	1	23	...	...	1	...	...	...	18	
Abortion	5	31	21	42	5	...	...	...	33	Profuse hæmorrhage in 2, menorrhagia in 1, phlebitis in 1, parametritis in 1.
Phlegmasia dolens	1	36	...	...	1	...	...	...	16	
Subinvolution of uterus	4	33	30	35	1	2	...	1	56	
Puerperal fever	1	29	...	...	1	...	...	...	27	

TABLE III.—*Sequelæ of Scarlatina.*

Number of cases.	Average age.	Dropsy.	Albuminuria.	Hæmaturia.	Discharges from ear or nose.	Glands.	Lungs, &c.	Heart.	Digestive.	Nervous.	Average time of appearance after invasion of scarlatina.	Average number of days in hospital.	Remarks.
4	yrs. 5	1	1	...	...	...	...	...	...	...	weeks 3½	29	In one case only a trace of albuminuria; in another the scarlatina followed measles.
3	7	1	...	...	...	...	...	...	...	...	3¼	16	In one only œdema of legs, which appeared in fifth week; no rash in one.
1	10	...	1	...	...	...	...	...	...	...	3	36	
2	7	1	1	1	...	...	...	...	...	...	3	30	Measles followed by varicella; then scarlatina.
1	5½	1	1	1	...	...	Bronchitis	...	Vomiting	...	3	44	
1	7	...	...	...	1	...	...	...	...	Headache	4	33	
1	13	1	1	...	Otor. deafness	Suppuration of cervical	...	...	...	...	3	33	
1	3	...	...	...	...	Sloughing adenitis	...	...	...	...	3	24	Desquamation of feet.

1	6	1	trace	...	...	Enlarged cervical glands	...	...	...	...	2	30	Second attack; first three years ago.
1	12	1	1	1	...	Ditto	...	...	Vomiting	...	3½	46	
1	4	1	1	1	...	...	...	Systolic apex and basic bruit	...	...	3	53	Great anæmia.
1	3	1	1	...	...	...	Right pleurisy, congestion left base, hooping-cough	...	...	...	3	29	
1	3¾	1	...	...	...	...	...	...	Diarrhœa	...	2	30	
1	3	1	1	...	...	...	Bronchitis, right pneumonia, right pleurisy	...	...	Meningitis, delirium, convulsions, subsultus	2	5	Male, died twelfth day after appearance of dropsy. *Post-mortem.*— Slight anasarca; cortex of kidneys swollen and mottled; lymphy exudation in right pleura; right lung general grey hepatization, left lung congested; lymphy exudation in upper surface of brain.
1	5½	1	1	...	...	Greatly enlarged cervical glands	Œdema, pleurisy	Basic systolic bruit	...	...	7	18	Died; second attack, not attended with rash; desquamation. Temp. 103·8°, rising gradually towards death. *Post-mortem.*—Kidneys large and pale.

TABLE IV.—*Typhus Fever.*

Age, &c.	Latent period and eruption.	Invasion.	Temp.	Symptoms.	Complication.	Treatment.	
31 W. B., male	10 days. No spots, mottling of skin	Headache, profuse perspiration; resembled typhoid at first	104 to 105·6°	Torpid, deaf; typhoid stage early; asthenia and coma vigil; tongue dry and glazed	Right, pneumonia 5th day after admission	Graduated baths, stimulants	Cured.
55 R. W., male	5 days? Copious eruption, petechiæ abundant.	Rigor, headache	103·6° to 104·6° p.m. for first ten days, then 100° to 101°	Flushed face, conjunctiva injected, pupils contracted, stupid, drowsy, headache. 6th day—Bowels loose, albuminuria, wandering delirium, sordes on teeth. 11th day—Typhomania, asthenia, subsultus, &c. 12th day—Laboured breathing, floccitatis, face flushed and dusky. 15th day, or 13th after admission—Died comatose.	Congestion of lungs about 5th or 6th day; congestion of kidneys	Brandy, Pot. chlor., Am. carb.	*Post-mortem.*—Congestion and partial consolidation of both lungs, congestion of spleen, kidneys, and mucous membrane, of ascending colon and cardiac end of stomach.
25 L. R., female	10 days. Mottling of skin 5th day, followed by eruption of a few pale spots; some petechiæ on abdomen and back. The spots faded by the 7th day	Rigor, malaise, headache, sleeplessness	101° to 103°; below 100° after 7th day	Face flushed, headache, retention of urine, bowels confined, sleepless; no typhoid stage showed itself; convalescent 17th day	...	Mist., Pot. chlor.	
40 W. G., male	? Irregular mottling on 3rd day; dark brown eruptions on 4th; patches irregular, $\frac{1}{4}$ inch in diameter, slightly raised, and disappearing on pressure	Rigors, shivering fits	103·8°	Anorexia, tongue furred, sleepless	Bronchitis		

TABLE V.—*Enteric Fever* (non-fatal cases).

Number of cases.			Average age.	Average no. of days ill before admission	Average no. of days in hospital.	Symptoms.							Complications.							Remarks.
T.	M.	F.				Spots.	Vomiting.	Diarrhœa.	Tympanitis.	Headache.	Somnolence.	Delirium.	Epistaxis.	Hæmorrhage from bowels.	Bronchitis.	Pneumonia & coug. of bases.	Pleuritis.	Cardiac murmur.	Albuminuria.	
2	2	...	32	14	32	...	...	1	...	...	...	...	...	...	...	...	...	...	...	Diarrhœa, with fever, the chief symptom.
2	2	...	21	7	32	1	...	1	...	...	...	...	...	...	...	...	...	...	...	
4	2	2	28	13	42	1	...	1	...	...	1	...	...	...	...	...	...	...	...	In 1 female aguish fits; in another female high temperature, 105° to 106°.
1	1	...	24	6	30	1	...	1	...	...	1	...	1	...	...	...	...	...	...	
1	...	1	11	4	58	1	...	1	...	...	1	1	...	...	...	...	...	...	...	
1	1	...	3¾	7	36	...	...	1	1	...	...	...	...	...	...	...	...	...	...	
2	1	1	20	7	25	1	...	1	1	...	...	...	...	...	...	...	...	...	...	Aphthæ of mouth in 1; urine albuminous in 1 case, followed by temporary dementia.
1	1	...	23	14	54	1	...	1	...	...	...	...	...	1	...	...	...	...	...	
2	1	1	14	7	33	1	...	1	...	1	...	...	...	...	...	...	1	Syst. apex	...	
1	...	1	27	14	51	...	...	1	...	...	...	...	...	1	...	...	...	...	...	
3	1	2	14	6	31	1	...	1	...	...	...	...	...	...	1	...	...	...	...	
2	2	...	29	8	41	1	...	1	...	...	...	...	...	...	1	1	...	...	1	
1	...	1	24	14	36	1	...	1	...	...	...	...	...	...	...	...	...	...	1	Œdema of legs and feet.
2	...	2	10	14	38	...	..	1	...	1	...	1	...	...	1	1	...	...	...	In 1 thrombosis of femoral vein.
1	...	1	31	...	183	1	...	1	...	1	...	1	...	...	1	1	...	...	1	Ditto.
1	...	1	22	...	62	1	1	1	1	...	...	...	...	...	...	1	...	...	...	Hæmoptysis.
1	1	...	19	14	38	1	...	1	...	...	...	...	1	...	1	1	...	Syst. apex	...	
1	1	...	22	7	44	1	1	1	...	1	...	...	...	...	1	...	1	...	...	
2	...	2	21	12	28	1	1	...	...	...	...	...	...	...	...	1	...	Syst. apex	1	
1	...	1	9	14	31	...	...	1	...	...	1	1	...	...	...	1	...	...	...	
1	...	1	41	14	86	...	1	1	...	...	...	...	...	...	1	...	...	Syst. apex	...	Subovaritis and uterine displacement.
2	2	...	11	10	115	...	1	1	1	1	1	...	...	1	1	...	...	Syst. apex	...	One case remained in hospital 30 days; in the other there were two relapses.

TABLE VI.—*Malignant Disease of Liver.*

Sex.	Age.	Time ill.	Enlargement of liver, character, &c.	Pain.	Jaundice.	Ascites.	Constitutional symptoms.	Complications, &c.
F.	48	9 months	Surface smooth, hard, not tender; 7½ inches in right axillary line	At first in epigastrium, afterwards in lumbar region	Deep jaundice	Moderate; 7½ pints fluid; œdema of legs	Emaciation, vomiting	*Post-mortem.*—Obstruction of bile-ducts, with dilatation.
F.	63	1 year	No nodulation, slightly tender. The dulness increased from 5 to 7 inches in 2 months	Attacks of sharp shooting pains, worse at night, and accompanied by shivering; occasional severe pain referred to region of gall-bladder, and also to between shoulders	Jaundice 2 weeks before admission; very deep	None	Frequent colic, nausea, occasional vomiting, emaciation, and prostration	Cancerous nodules in lungs.
F.	57	2 years	Enlargement uniform, surface hard, uneven; 8 inches vertically	Constant pain in upper part of abdomen and back, but often intensified	Slight	None	Constant nausea, occasional retching, constipation, T.101°, progressive emaciation	Stomach and gall-bladder involved in the new growth; peritonitis, and ulceration of gall-stone into portal vein; phlebitis, pyæmia; recent vegetations on mitral valve.

F.	42	6 months	Surface undulating, without excrescences, firm and elastic, not tender; 11 inches left nipple and mesial line; weight 12½ lbs. The girth of abdomen occasionally increased ½ inch in 2 days	Of a dragging character, not severe	None	Moderate; œdema of legs and thighs	Progressive emaciation, anorexia, constipation	Veins of abdominal wall enlarged; congestion of lungs; no cancer found elsewhere.
M.	58	11 months	Enlargement uniform, surface smooth, little or no tenderness; 9 inches vertically. The extent of dulness diminished for a time	No pain	Intense	None, until shortly before death	Emaciation, sleeplessness, chills, tympanitis	*Post-mortem.* — Ulceration of mucous membrane of gall-bladder and of mouth of common bile-duct; peritonitis; no new growth elsewhere.

TABLE VII.—*Chronic Bright's Disease* (fatal

Age.	Sex.	No. of days in hosp	History.	Dropsy.	Urine.			
					Quantity.	Sp. gr.	Albumen.	Casts.
36	M.	4	Three attacks of gout; cough, dyspnœa, vomiting, &c., 9 months	Slight; no ascites	Moderate	1015	¼	Granular
66	F.	4	Subject to changes of temperature; 18 months ago general dropsy; second attack 5 weeks ago	Much; ascites with small liver	"	1020	⅓	...
40	M.	4	Ague for 15 years; violent lumbar pain, continuing for 2 days a week before admission; suppression of urine, rigors and hæmaturia 4 days before admission. (Said to have been kicked.) Died 4 days after admission	None	Scanty, afterwards suppression	1025	Much	None
23	M.	1	Died an hour after admission; scarlatina æt. 9; rheumatic fever once; three attacks of dropsy. (Said to have had fits.)	Slight pitting of skin	Scanty	1010	"	"
72	M.	107	Winter cough 4 years; temperate; dropsy 3 months ago	Much	"	1020	Slight; often absent	...
50	F.	19	Palpitation and asthma for 9 years; occasional swelling of feet last 12 months; admitted with dyspnœa and cyanosis	Slight	"	1025	Much	...

cases in which a post mortem was obtained).

Hæmorrhages.	Inflammations, &c.	Heart and vessels.	General symptoms, &c.	Condition of kidneys, &c.
...	Pleuritis, with effusion; two pints each cavity	Pain in cardiac region; sounds feeble; hypertrophy of heart, palpitation	Vomiting, dyspnœa, œdema of lungs, &c.; temp. 96°	Granular, contracted.
Hæmoptysis	Bronchitis, emphysema	Cardiac systolic murmur left apex; weak pulse; enlarged heart, especially right ventricle; incompetence of mitral and tricuspid valves	Orthopnœa, cough, profuse expectoration, lividity of surface	Ditto.
Hæmaturia, hæmatemesis, melæna	Pericarditis, congestion of lungs	Weak pulse; cardiac hypertrophy	Drowsy, restless, vomiting; breath with urinous odour; temp. 97·6°; hands cold, tongue dry and brown; occasionally muscular twitchings, obstinate constipation	Right kidney small, granular degeneration of cortex; dilated pelvis, with pyelitis. Left kidney: ureter dilated and filled with blood; contusion of fat round kidney, with abscess in diaphragm.
Hæmoptysis, epistaxis	Right pneumonia	Hypertrophy of heart	Circulation feeble, surface livid	Contracted granular degeneration; kidneys very small, 3½ oz.
...	Emphysema, congestion of bases of lungs	Hypertrophy; systolic apex bruit; heart's action very irregular, 2 to 3 oscillation waves in curve of descent of pulse tracing	Dyspnœa, orthopnœa occasionally, lips livid, sleeps badly	Granular, contracted.
Pulmonary apoplexy (one large clot, lower lobe left lung, the branch of pulmonary artery being filled with discolored thrombus)	Emphysema, endocarditis, œdema of lungs; slight recent peritonitis	Systolic apex bruit and occasionally presystolic; arteries hard; pulse feeble; hypertrophy of both ventricles, with dilatation of right auricle; mitral stenosis, with vegetations; general atheroma of vessels	Dyspnœa, lividity; temp. 97°; impaired intelligence; occasionally delirium; dry gangrene of little toe, spreading to foot; jaundice. Temp. rose to 101° the week before death	Capsule adherent, contracted granular and cystic cortex, with depressions from old infarcts; some softening of convolutions of right hemisphere with embolism of branch of cerebral artery.

Age.	Sex.	No. of days in hosp.	History.	Dropsy.	Urine.			
					Quantity.	Sp. gr.	Albumen.	Casts.
39	M.	7	Epilepsy 14 years; several attacks of gout; 10 days before admission, shivering, headache; 2 days before adm. fit of apoplexy without loss of consciousness, followed by impairment of speech, left hemiplegia, headache, and occasional delirium	None	Scanty	1021	[illegible]	...
40	F.	4	Subject to cough; 3 months ago headache, anorexia, attacks of giddiness lasting half an hour; progressive debility, shortness of breath, profuse sweating	Slight	Moderate	1017 to 1025	Trace	None
73	F.	2	Erysipelas twice; frequent diarrhœa; hæmorrhoids; subject to winter cough; 2 months ago swelling of feet and shortness of breath	Slight œdema of legs and puffiness of face	Small	1019	Slight	"
29	F.	10	Father died of heart disease, mother of consumption; cough and hæmoptysis after confinement 2½ years ago; returned with greater severity after last confinement, 7 weeks ago	...	Moderate	1024	Abundant	Granular
34	F.	37	A pint of gin daily for years; 10 months ago two convulsive fits, unconsciousness, with subsequent stupor; in 5 months another, and 2 months later a series of fits. In-patient 2 months ago with uræmic convulsions and coma. Readmitted with constant succession of convulsive seizures	Slight œdema of legs	Frequently abundant	1013	⅔	"
19	M.	4	Always short of breath; ill 3 months, worse 1 week; dyspnœa, cough, palpitation, increasing dropsy	Face puffy; general anasarca, ascites	Scanty	1025	⅓	Granular and fatty
30	M.	4	Picked up in street bleeding from mouth and nose, and unconscious. Pulse 100; temp. 99·2°. Passage of catheter brought on a fit—loss of consciousness, clonic spasms, foaming at mouth, &c.	...	...	1010	Much	...

Hæmorrhages.	Inflammations, &c.	Heart and vessels.	General symptoms, &c.	Condition of kidneys, &c.
Hæmorrhage into right corpus striatum (hemisphere ploughed up, and blood in lateral ventricles)	Emphysema, congestion of lungs	Heart sounds feeble; dilatation and hypertrophy of right ventricle; no murmur	Breathing stertorous, roused with difficulty; pupils contracted at first, afterwards dilatation of right; pulse 108; resp. 40; dry brown tongue; left hemiplegia; became comatose	Granular, contracted.
...	Emphysema; cavity in upper part of right lung, with surrounding consolidations, congestion of left lung	No cardiac hypertrophy, no murmur; impulse cannot be felt; pulse 120, very weak	Enlarged fatty liver; cough; dark, offensive motions; sleepless, low spirited; temp. 99·6°	Kidneys very small, granular, contracted; great wasting of cortex.
...	Œdema of lung, chronic cirrhosis of liver, general peritonitis	Hypertrophy of left ventricle; no murmur	Great anæmia, pallor; abdomen distended, tympanitic, and painful; wandering delirium; temp. 96° to 97°	Granular, contracted; new growth in rectum, with ulceration.
Patches of pulmonary apoplexy (some loss of resonance at bases, bronchial râles, and at right base fine bubbling)	Acute pericarditis; liver congested, enlarged, and tender	Great hypertrophy of left ventricle; double apex murmur	Dyspnœa, cough, mucopurulent expectoration, vomiting, palpitation, sleeplessness, anæmia	Granular, contracted.
...	Bronchitis	Dilated heart; pulse 72, weak	Uræmic convulsions, occasionally ten to twenty in the 24 hours; involuntary evacuation; urinous odour of breath; average temp. 95° to 96°	Granular, contracted; much wasting of cortex, with adherent capsule.
Slight hæmaturia	Pericarditis, with effusion, congestion of liver	Hypertrophy, with dilatation	Lips livid, orthopnœa; temp. 95° to 98°	Cortex of kidneys pale and swollen; pyramids congested; collapse of middle lobe of right lung.
Hæmaturia	...	Hypertrophy of left ventricle; systolic basic murmur; fibroid deposit around large vessels; atheroma of aorta	Lies with eyes open, breath uræmic, breathing stertorous, pupils somewhat dilated, slight subsultus; no paralysis; temp. 95°	Kidneys very small, granular, and contracted cortex.

TABLE VIII.—*Apoplexy*

Age.	Sex.	No. of days in hosp.	History.	Seat of effusion, &c.	General symptoms.
52	F.	1	Widow, 7 children; previous attack of right hemiplegia lasting 9 months; palpitation; of temperate habits	Hæmorrhage into pons	Respiration snoring; sensible, power of articulation and partly also of deglutition lost; temp. 98·6°, rose rapidly to 103·6°, and then to 105°
65	F.	1	Brought in comatose; a recent bruise over internal angular process of left frontal bone	Hæmorrhage over surface of right cerebral hemisphere, a large clot on surface; descending horn right lateral ventricle dilated and softened with a patch of hæmorrhage; patches of old softening, right side; right optic thalamus and corpus striatum softened	Comatose, breathing stertorous
49	F.	18	Becoming gradually weaker last 3 months, with loss of flesh; bad appetite, vomiting in evening and on rising in morning for 2 weeks previous to admission; vomit greenish	Bloody fluid in lateral and third ventricles; large recent clot in left optic thalamus extending into corpus striatum; clot fourth ventricle and pons; softened left crus cerebri	Great constipation, vomiting, progressive stupor and debility, no paralysis; night before death was found unconscious, with stertorous breathing and progressive coma
51	F.	4	Subject to severe frontal headache for years; 5 weeks ago fell down unconscious, no paralysis after; 4 days before admission a second fit of same kind	Hæmorrhage into left corpus striatum and white substance of hemisphere outside; small hæmorrhage into pons	Resp. 32, noisy, breath uræmic; semi-comatose
44	M.	1	—	Hæmorrhage into lateral ventricles, left full of blood, and right containing voluminous clots; nucleus caudatus, and surrounding parts right side torn up as far as the island of Reil	Resp. quiet, 30, slight snoring; temp., right side, 98·6°, left side, 99·1°

(*fatal cases "post-mortemed."*)

Pupils.	Muscular system.	Vascular system.	Kidneys.	Complications, &c.
Small, but equal	Paralysis of right arm and leg, and of left side of face; spasmodic twitchings of both eyes downwards; slight reflex movement in right leg; limbs lax	Hypertrophy of left ventricle; atheroma of cerebral vessels	Granular, contracted kidneys	Congestion of bases of lungs; old cicatricial patches, apex of right lung.
Dilated	Complete paresis of all the muscles, especially of the left side	Arteries hard and tortuous	—	—
Unequal	General paresis, no drawing of mouth noticed	Atheroma of vessels of brain; atheroma of aorta; hypertrophy of heart	Granular, and cystic degeneration	Urine 1012, albuminuria, no casts.
Contracted	Complete hemiplegia right side, with right facial paralysis; legs cold	Arteries hard, pulse 108; extreme atheroma of cerebral arteries; hypertrophy of heart, stenosis of mitral valve	Granular, contracted	Urine 1020, slight albuminuria, granular and hyaline casts.
Contracted and equal	Left hemiplegia followed by rigidity and convulsions of all the limbs at short intervals; left eye incompletely closed. Shortly before death: paralysis of left arm and leg, arm rigid; right leg drawn up, and right arm being continually raised to head	Atheroma of pia mater, &c.	Granular, contracted	Gouty deposits in great toe-joints and dura mater; synovitis right knee-joint; urine 1013, albuminous, alkaline.

TABLE IX.—

Sex.	Age.	Duration.	History.	Mode of invasion.	Vertigo.	Affections of eyes, ears, &c.
M.	59	34 years (still in Charcot's 1st stage)	Mother nervous, one sister subject to paralysis agitans (?); patient always nervous	Æt. 25; nystagmus, tremulous movements and slight paresis of lower extremities; occasional improvements	Occasional, giving rise to difficulty in walking	Nystagmus
M.	25	1 year	Family healthy; patient fairly temperate; symptoms much worse after a wetting 3 months ago	12 months ago pain round lower part of trunk and pains in thighs; unable to walk well for past year; trembling associated with the loss of power; 6 months ago neuralgia in head for 6 weeks, attacks of giddiness, constipation, occasional vomiting	Frequent	Sight good slightly deaf
M.	39	6 months	One of brothers similarly affected; patient never had rheumatism or syphilis; has suffered greatly from nervousness last 12 months	For the 3 months before admission, weakness of legs, with pains in the calves	No giddiness	...
M.	48	9 months	...	Weakness of lower extremities last 9 months, worse some days than others; last 3 months attacks of numbness in legs, and lately in arms and hands also (the numbness lasts 1 to 5 hours, and is followed by cramps, especially in calves)	Occasional giddiness	Sight impaired last 6 months; optic discs normal
F.	38	16 months	General health good till present illness	Sensation of "pins and needles" in feet 12 months ago, cramp in calves, and shooting pains in legs; paraplegia has been coming on gradually for the last 12 months; difficulty in speech since 2 months; lately slight tenderness over lumbar spines	...	Nystagmus causing dizziness; double vision in mornings

Disseminated Sclerosis.

Defect of speech, &c.	Paresis.	Rhythmic tremors.	Contractions of limbs.	Mental, &c.
Tremors of facial muscles and of tongue on speaking; articulation slow, imperfect, with frequent pauses; drawls his words	Very slight in lower extremities	3 or 4 years ago tremor in hands and arms, later in head and neck; no tremor of legs; walks slowly, but firmly; no loss of co-ordination; at present tremor of arms when he holds them out; writing also tremulous	None	Memory defective; unable to work for last 2 years; emaciated; pain in back of head and neck.
Speech slow and articulation peculiar, but greatly under the control of the will	Walks with difficulty; muscles tremulous; no loss of sensibility, and no paralysis of bladder or rectum	Tremors in arms and legs on attempting to move them; the tremors, however, are greatly under the control of the will	„	Frontal headache occasionally very severe; pain often in knees; shooting pains in right arm and down spine.
Speaks unsteadily; lips and tongue tremulous	Drags his legs in walking; no loss of muscular sense; legs feeble	Tremors in limbs	„	
No marked change in mode of articulation	Walks feebly, tends to fall forwards	Frequent tremors of hands and legs, but not of head or neck	...	This case is doubtful.
Speaks thick, slurs her words greatly; difficulty in deglutition of fluids	Cannot walk, right leg more paralysed than left	Shaking palsy of head	A few attacks of rigidity of limbs	Intellect gone, but still does as she is bid; rambles greatly.

TABLE IX.—

Sex.	Age.	Duration.	History.	Mode of invasion.	Vertigo.	Affections of special senses.
M.	[illegible]	14 years (still in Charcot's 1st stage)	Mother nervous, one sister subject to paralysis agitans (?); patient always nervous	Æt. 25; nystagmus, tremulous movements and slight paresis of lower extremities; occasional improvements	Occasional, giving rise to difficulty in walking	Nystagmus
M.	25	1 year	Family healthy; patient fairly temperate; symptoms much worse after a wetting 3 months ago	12 months ago pain round lower part of trunk and pains in thighs; unable to walk well for past year; trembling associated with the loss of power; 6 months ago neuralgia in head for 6 weeks, attacks of giddiness, constipation, occasional vomiting	Frequent	Sight good, slightly deaf
M.	39	6 months	One of brothers similarly affected; patient never had rheumatism or syphilis; has suffered greatly from nervousness last 12 months	For the 3 months before admission, weakness of legs, with pains in the calves	No giddiness	...
M.	48	9 months	...	Weakness of lower extremities last 9 months, worse some days than others; last 3 months attacks of numbness in legs, and lately in arms and hands also (the numbness lasts 1 to 5 hours, and is followed by cramps, especially in calves)	Occasional giddiness	Sight impaired last 6 months; optic discs normal
F.	38	16 months	General health good till present illness	Sensation of "pins and needles" in feet 12 months ago, cramp in calves, and shooting pains in legs; paraplegia has been coming on gradually for the last 12 months; difficulty in speech since 2 months; lately slight tenderness over lumbar spines	...	Nystagmus causing dizziness; double vision in mornings

Disseminated Sclerosis.

Defect of speech, &c.	Paresis.	Rhythmic tremors.	Contractions of limbs.	Mental, &c.
Tremors of facial muscles and of tongue on speaking; articulation slow, imperfect, with frequent pauses; drawls his words	Very slight in lower extremities	3 or 4 years ago tremor in hands and arms, later in head and neck; no tremor of legs; walks slowly, but firmly; no loss of co-ordination; at present tremor of arms when he holds them out; writing also tremulous	None	Memory defective; unable to work for last 2 years; emaciated; pain in back of head and neck.
Speech slow and articulation peculiar, but greatly under the control of the will	Walks with difficulty; muscles tremulous; no loss of sensibility, and no paralysis of bladder or rectum	Tremors in arms and legs on attempting to move them; the tremors, however, are greatly under the control of the will	,,	Frontal headache occasionally very severe; pain often in knees; shooting pains in right arm and down spine.
Speaks unsteadily; lips and tongue tremulous	Drags his legs in walking; no loss of muscular sense; legs feeble	Tremors in limbs	,,	
No marked change in mode of articulation	Walks feebly, tends to fall forwards	Frequent tremors of hands and legs, but not of head or neck	...	This case is doubtful.
Speaks thick, slurs her words greatly; difficulty in deglutition of fluids	Cannot walk, right leg more paralysed than left	Shaking palsy of head	A few attacks of rigidity of limbs	Intellect gone, but still does as she is bid; rambles greatly.

TABLE IX.—

[illegible]	Duration.	History.	Mode of invasion.	Vertigo.	Affections of eyes, ears, &c
F. 36	10 months	6 children, 4 still-born and other 2 died in infancy; pleuro-pneumonia after last confinement; rheumatic fever 12 years ago, "brain fever" 7 months ago	Had a fit 5 months ago without loss of consciousness, but with temporary loss of speech and sight, and followed by temporary right hemiplegia (?); 9 weeks ago sudden loss of power of legs; recovered so as to be able to walk a little at the end of 5 weeks	..	Sight and hearing impaired; occasional double vision; optic discs normal
F. 46	...	Father and mother died of phthisis; married 27 years; rheumatic fever 27 years ago; paraplegia of old standing, 6 years; left hemiplegia on admission; sclerosis of cord, probably spreading downwards	6 years ago great fatigue after exertion, required assistance in walking; lost sense of taste, smell, and slightly of hearing also; subject to intense headache; increasing paresis lower extremities; 14 days ago gradual loss of power of left side	Vertigo	Dimness of vision; loss of taste, smell, &c.

(*continued*).

Defect of speech, &c.	Paresis.	Rhythmic tremors.	Contractions of limbs.	Mental, &c.
Tongue not tremulous	Power of legs great; seems to stand on toes and to dance up and down; does not throw legs about in walking, but drags her toes along the floor; no loss of co-ordinating power, but cannot walk without help; can grasp firmly	Trembling of legs if they are put to the ground; also of arms; tremors always in direction of attempted movements	Rigidity of muscles of legs and right side of neck	Cerebro-spinal; died 17 days after admission; no post mortem. At first was rational and talkative, but became semi-conscious and drowsy; head drawn to left shoulder; pupils contracted; difficulty of breathing; albuminuria; several apoplectic fits, with high temperature, 100° to 103°.
Lost power of speech for a day a year ago; speech not affected at present; difficulty in swallowing	Slight facial paralysis, left hemiplegia, incontinence of urine	...	Arms and legs rigid; occasionally attacks of rigidity in hand	Quite rational; phlebitis of left femoral vein; shooting pains in limbs.

Table X.—Cases of Infectious Disease originating in Hospital Wards.

Initials.	Sex.	Age.	Disease for which admitted.	Disease originating in hospital.	Date of attack.	Result.	Remarks.
H. M.	M.	6¼	Chronic hydrocephalus	Measles	Mar. 17	C.	Victoria ward.
T. S.	M.	4	Surgical	„	„ 21	C.	
J. S.	M.	5	„	„	Apr. 8	C.	
W. L.	M.	2½	„	„	„	C.	
E. A.	M.	5 mos.	„	„	„ 21	C.	
L. F.	F.	31	...	„	Feb. 19	C.	"Sister," in surgical ward.
F. C.	F.	2	Surgical	„	Mar. 12	D.	
L. B.	F.	2½	Right hemiplegia	„	Feb. 12	D.	
S. W.	F.	3	Infantile paralysis and bronchitis	„	Apr. 1	C.	
A. H.	M.	8	Surgical	Varicella	Aug. 13	C.	
G. W.	M.	31	...	Variola (mod.)	Nov. 22	C.	Bathman.
M. W.	F.	19	...	„ (disc.)	Dec. 6	C.	Servant in college house.
R. M.	M.	22	...	Scarlatina (simp.)	Apr. 8	C.	House surgeon.
V. J.	M.	4	...	„	May 16	C.	Child of apothecary.
L. H.	F.	25		Typhus	Aug. 13	C.	Nurse.
E. B.	F.	41	...	Typhoid	Nov. 27, 1875	C.	"Sister."
H. V.	F.	27	...	„	Dec. 7, 1875	C.	Nurse.
R. H.	F.	41	...	„	Apr. 20	C.	"Sister."
M. H.	F.	31	Thrombosis of femoral vein	„ (?)	Jan. 8	C.	

SPECIAL ANALYSES AND ABSTRACTS.

I.—MEASLES.

Four of the 15 cases were medical students, and occurred in February; 1 was a hospital sister, and occurred about the same time; 7 cases originated in Victoria ward in the end of April and beginning of May; 2 were cases of second attack; 1 case died with broncho-pneumonia and collapse of lungs. Five of the 15 were adults. The type was mild.

II.—VARIOLA.

The majority of the patients were adults. One case occurred in April, and the rest from the middle of August to the end of December; 7 were modified smallpox, each one having good vaccine marks. In these modified forms there was considerable delirium, with high fever of short duration in 2, vesicular eruption with secondary fever (102°) for two days in 2, and only a few papules and vesicles with slight fever in the remaining 3.

Six cases were discrete, and recovered. In 1 (vaccinated in infancy) abortion occurred on the ninth day, but the temperature kept below 102° during the whole attack; in a second the temperature during the fever of invasion rose to 106·6° p.m.; in a third (æt. 9 mos.) vaccination had never been performed, the temperature of the primary fever rose to 104·5°, that of the secondary to 102°; in a fourth, in which there was one vaccine mark, the temperature of the primary fever rose repeatedly to 105·6°, and there was great delirium, headache, and a copious eruption, and the temperature of the secondary fever rose for one day to 104°; in the fifth there was one vaccine mark, and the attack was very mild; while in the sixth there were three good marks, and although the eruption was copious and pustular, the secondary fever was very slight.

Three cases proved fatal. 1. C. L—, æt. 19, three indifferent vaccine marks. Intense backache; repeated rigors and vomiting; fever of invasion sharp. Temp. 103·2°; slight delirium; copious eruption confluent on face. Twelfth day face livid; pustules desiccating. Temp. 101·8°. Fourteenth, temp. 99° a.m. Died on fifteenth day.

2. W. B—, æt. 32; one bad vaccine mark. No rigors; repeated nervous attacks. Second day face swollen and red. Third day eruption of irregular red

tion in large intestine near ileo-cæcal valve, whole of large intestine ulcerated, ulcers in small intestine; patches collapse and consolidation bases of lungs.

Of the above 7 fatal cases 1 died of asthenia about the 65th day, 1 of brain and lung complication about the 13th day, 1 of asthenia (?) and lung complication about the 18th day, and 4 of perforation occurring about the 19th day in 1, 28th in another, and the 36th in the remaining 2.

In the 35 non-fatal the mode of access varied greatly—well-marked rigors in 3, shivering in 11, diarrhœa, nausea, and vomiting in 13, headache in 16, drowsiness and delirium in 3, pains in limbs and general malaise in 10; in 5 no noticeable symptoms showed themselves at all. The most frequent complication was bronchitis. Albumen was present in 6 cases, systolic apex bruit in 6, thrombosis of left femoral vein in 2, congestion of the bases of lungs or pneumonia in 10.

V.—DIPHTHERIA.

Five cases. Tracheotomy was performed in 2 of the fatal cases; death occurred ten hours after in the one (æt. 2 years), and immediately after in the other (æt. 1¾). In the third fatal case (half year) no membrane was found post-mortem. There was collapse of lung and lobar pneumonia; death was preceded by convulsions. In the fourth fatal case (æt. 7) the glands of neck were enlarged, thick membranes on throat, and much sickness; 24 hours before death left hemiplegia. P. M.—Thrombus in left auricle, embolism of right internal carotid and middle cerebral with softening of right hemisphere.

The non-fatal case remained in hospital 217 days. The diphtheria was followed by sore throat, and by erysipelas (of which there were relapses), and was complicated with syphilis (tertiary). About 35 drugs were employed in her treatment.

VI.—SYPHILIS.

Nine cases. Three were cases of congenital and 6 of constitutional syphilis. With one exception the latter were in the tertiary stage. Epilepsy, nodes, deep ulcerations, and deafness were the chief symptoms. Three proved fatal: (1). M., æt. 47, ulceration of throat, dysphagia, bronchitis, consolidation of bases of lungs. (2). F., æt. 35, waxy degeneration of kidneys (third stage), gummata in liver, ulceration of pharynx and fauces, congestion of mucous membrane of stomach and intestine; and hæmorrhage from the latter; waxy enlargement of spleen, and waxy degeneration of mucous membrane of bladder, &c. (3). F., æt. 1½, congenital syphilis, capillary bronchitis, &c.

VII.—GLANDERS?

Died day after admission, and one month after a skin excoriation caused by the bite of a horse. Left pleuro-pneumonia, inflammation of several joints and of the areolar tissue; profuse sweating, pimples on skin, scattered pustules on face and chest; short quick respiration, dry brown tongue, delirium. No discharge from nose and no glandular enlargement.

VIII.—PYÆMIA (SEPTICÆMIA).

W. T—, male, æt. 25. Occasional diarrhœa with attacks of shivering for the month preceding admission; no cause known. On admission mind clear, eyes congested, tongue thickly furred, very weak; small ecchymoses on chest and abdomen, large joints painful and tender, especially left knee and wrist; liver and spleen enlarged and tender; jaundice, hacking cough, dulness both bases with mucous crepitation left base; abdomen distended, diarrhœa, and watery evacuations.

Died the day after admission comatose. P. M.—Suppuration in left knee joint, ecchymoses in skin, pericardium, pleura, and in some of cervical nerves and vagus; patches of collapsed lung at both bases; liver enlarged; superficial meningitis: general congestion of pharynx.

E. F—, æt. 45, female, married. General weakness for ten weeks preceding admission; eight weeks before admission sudden loss of consciousness without convulsions, never any similar fit previously; the week before admission spitting of blood. Skin sallow, much emaciation; pulse 120, very feeble; typhoid symptoms; liver dulness increased, edge extending to within an inch of umbilicus, much tenderness over left hypochondrium. Three days after admission rigors set in, lasting ten to fifteen minutes, attended by rapid elevation of temperature (104° to 106°), and followed by profuse sweating. Much relief afforded by subcutaneous injections of carbolic acid. The temperature sank very low (96·4° and 97·2° p.m.) the ninth and tenth days, occasionally rising to 103° or 104° after a rigor; and on the day before death it fell to 95·8° p.m. Died thirteen days after admission. P. M.—Suppurating fibroid tumour of uterus, thrombosis of branch of hepatic veins and of vena cava inferior from communicating with an abscess in liver.

A. H—, æt. 33. For twelve months symptoms pointing to liver derangement; six weeks before admission a severe mental shock caused by the sudden death of a brother. Loss of appetite and headache for three weeks, then spitting of blood chiefly in clots; for the three days preceding admission epistaxis, followed by intense headache, shivering fits, fever, and delirium at night. Fell down stairs day before admission and was picked up unconscious; on recovery became violent. On admission semiconscious, skin sallow, temp. 105, resp. 45, serous oozing from nose, hæmoptysis, breath offensive, bowels confined. Liver small, spleen enlarged forming a prominent tumour below the ribs; mottling of skin, with scattered petechiæ on abdomen and back, rhonchi over chest. The temperature varied, and rose in evening to 106·4°. Died on the second day after admission. P. M.—Ecchymoses in lungs and mucous membranes, small quantity of bloody serum in pleuræ, congestion of inferior lobes of lungs, spleen enlarged, fatty degeneration of heart beneath endocardium, dura mater opaque and thickened, with increase of subarachnoid fluid.

IX.—ERYSIPELAS.

Two of the 24 cases died. G. M—, æt. 39, intemperate; ill for five days. Erysipelas of face and head, temp 101°, resp. 58, partial suppression of urine, delirium. Temperature rose to 107° (2 p.m.) on second day after admission, and death occurred two hours after. P. M.—Congested fatty liver, ulceration of back of tongue. (2) J. S—, æt. 56, ill five days. Œdematous erysipelas of left axilla; albumen and granular casts in urine, breathing weak; temp. 101° to 104° (p.m.); pleurisy both sides. Temperature on eighteenth day of disease 103°, sinking to 100° before death. P. M.—Recent adhesions of both lungs with effusion, especially into left pleura; congestion of kidneys.

In the remaining 22 cases the majority were adults (30 to 60), and the average duration of the fever 12 days. Three were suppurative, and 1 œdematous. In 18 the face was affected, the right side especially in 2, the left especially in 3, the head as well in 4, and the legs in 3; in the remaining 4 the legs and feet. All, except 4, were cases of first attack. In 11 there was a well-marked period of incubation lasting one to two days before the eruption appeared, and showing itself in rigors, shivering fits, headache, &c.; and there was a history of constipation in 13, and of intemperate habits in 5. In 4 cases the eruption appeared without any fever, the temperature never rising above 99·5°.

Albuminuria occurred in 8 cases, and accompanied by casts in 2; diarrhœa in 2, bronchitis in 3, partial suppression of urine in 2, rheumatism, with pericarditis, pleurisy, and pneumonia in 1, double vision from protrusion of eyeball in 1.

X.—PHTHISIS.

Ninety-one cases, 50 deaths. A post mortem was obtained in 40 cases. Of the 51 other cases, 4 were 1st stage, 4 acute phthisis, 3 probably bronchiectasis with or without cirrhosis, and 40 chronic phthisis.

Of the 40 *fatal* cases examined post mortem, 16 were acute phthisis, 3 cirrhosis (males), and 21 chronic phthisis.

In the 16 cases of *acute phthisis*, the average duration of the disease varied from 2 weeks to 5 months; tubercle was found in the meninges in 5, in the peritoneum in 5, in the pericardium in 1, in the pleura in 1, and in the kidneys in 2. There was peritonitis in 1 case without tubercular deposit, and in another peritoneal effusion alone.

Cirrhosis.—(1) ♂ Æt. 36, of a gouty diathesis; attack of bronchitis, lasting 4 months, followed by progressive emaciation, slight hæmoptysis, and hectic, complicated with pleuro-pneumonia and enlargement of liver. (2) Æt. 53, health good, not subject to cough; never hæmoptysis or rheumatic fever. Three months before admission was exposed to considerable changes of temperature; "caught cold." On admission, cough, great dyspnœa, profuse muco-purulent expectoration, some general anasarca, hectic; temp. 99° to 101·4°; pulse 120; resp. 32; trace of albumen in urine. Dulness of both lungs posteriorly; small bubbling over left lung and at base of right lung; hyperresonance anteriorly. Died 14 days after admission. P. M.—Both lungs nearly solid throughout, and adherent to chest-walls; substance converted into dense pigmented fibroid tissue. Ulcers in cæcum; hypertrophy of right ventricle; kidneys pale and wasted. (3) Æt. 43. Inflammation of kidneys 14 years ago; health fairly good; subject to lumbago. Two years ago cough with profuse expectoration; hæmoptysis 16 months ago; progressive emaciation last 12 months; much worse last 11 weeks. On admission anæmic and emaciated; cough, with fœtid, greenish expectoration. Pulse 108;

temp. 99° to 100°. Died 28 days after admission. P. M.—Great fibroid consolidation of both lungs, with patches of softening in apices; pleuræ generally adherent.

XI.—CHRONIC BRONCHITIS.

Complications.—(31 cases, 8 deaths.) Dilated right ventricle (with hypertrophy in the majority) in 11, dropsy in 6, emphysema in 6, albuminuria in 5, atheroma of pulmonary artery in 5, atrophy of kidneys in 1, enlarged firm kidney with cysts in 2, congestion of kidneys in 2, infarcts in kidney and spleen in 1, induration and atrophy of lungs in 1, congestion of lung in 1, congestion of spleen in 2, atrophy of liver in 1, hemiplegia in 2, pleurisy in 2, melæna in 1.

XII.—PNEUMONIA.

Total, 41: 17 right, 17 double, and 7 left. In 3 of the 17 right there were physical signs of commenciag inflammation in left base also; 7 of the 17 double pneumonia were of the left side chiefly, 3 especially of the right side, and 2 of the upper lobes. Of the 7 left, 1 was of the apex.

The average age of the patients with left pneumonia was 13 years, while that of the other two forms was 22.

Of the total 41, 29 were males and only 12 females; but this predominance of the male element was shown more strikingly in left pneumonia, only 1 female being affected.

Four of the double and 3 of the right pneumonia died, giving a respective mortality of 23·5 per cent. and 17·6 per cent. The fatal cases were generally complicated with pleurisy and pericarditis; in 1 there was meningitis and in another granular degeneration of the kidneys.

The average duration of the stay in hospital for the single forms was about 20 days, and that of the double forms about a third longer (31 days).

XIII.—PLEURO-PNEUMONIA, PLEURISY, AND EMPHYSEMA.

Pleuro-pneumonia.—Under this term are included the cases that were admitted as such. There were 7 males to 3 females. Both sides were affected in 2, the left especially; the right in 3, and the left in 5.

Pleurisy.—Two of the 11 cases were probably dependent upon tubercle in the lung; 7 were of the right and 4 of the left side.

Empyema.—Fatal cases: (1) Æt. 39. Left pleurisy, 1 month? Shivering, &c., 3 days before admission. On admission cough, fœtid expectoration; temp. 102·8° to 104°, p.m.; delirium. *Post mortem.*—Left empyema; fistulous opening into lung; secondary gangrene of lung; broncho-pneumonia; chronic renal disease of right kidney. (2) Æt. 40. Right pleurisy 6 or 7 months ago. Ten days before admission severe pain over abdomen. Right empyema perforating diaphragm and lung, with peritonitis.

Of the 11 cases, only 1 was a female, and 7 were of the right side. Pneumothorax was marked in 2, albuminuria in 3. The empyema opened into a bronchial tube in 3 cases aud perforated the diaphragm (with peritonitis as a result) in 1 case. Pleurisy of the opposite side in 1. Six cases were cured, and 5 of these had paracentesis performed, and in some cases repeatedly.

XIV.—HEART DISEASES.

1. *Exophthalmic goitre.*—Female, æt. 21. Hysterical, several fits of hysterical hemiplegia; systolic murmur at apex and base; thyroid gland enlarged; visible pulsation of carotids; headache; anaemia; paroxysms of palpitation and dyspnœa, attended by fulness of neck; occasional sickness; right pupil irregular and sluggish; right sterno-mastoid tender. On 47th day after admission pericarditis; pulse 148; resp. 48; temp. rising rapidly from 101·6° to 105·6°; restless, excited, delirious. Two days later left hemiplegia, and death during night. P. M. refused.

2. *Malformation.*—(1) E. R—, female, æt. 4. Father rheumatic; mother delicate; had a severe fright 2 months before birth of child. Phthisis and heart disease on mother's side. Full colour, palpitation, shortness of breath till æt. 2½; then became distinctly cyanotic. Cough; frequent hæmoptysis, blood being dark coloured, the temperature generally rising before the hæmoptysis occurs; fingers clubbed. Præcordial space prominent, invading whole lower part of front of chest, increased cardiac dulness; both sounds audible, of the fœtal "tic-tac" character and unattended by murmur, but occasionally they are loud and flapping, with perhaps a systolic basic murmur. Pulse not distinct at wrist, that of femoral 132. The cyanosis varies in intensity. Measles set in the 58th day after admission, pneumonia on the 78th. Temp. 102·5°; p.m. 104·9°. Death occurred on the 80th day after admission. (No P. M.)

(2) G. T—, male, æt. 13. Always delicate, and of a livid colour, especially in cold weather, but not short of breath. Admitted cyanotic, with basic thrill and double murmur at apex and base, that over pulmonary the loudest; marked pulsation of carotids and distension of veins in neck and axilla; ascites and enlarged liver. Subject to occasional rigors. The ascites increased, and, resisting treatment, tapping was performed on the 55th day after admission, again on the 70th, and again on the 126th day. The evening after last tapping, complained of abdominal pain and sickness, and died on the 127th. P. M.—Peritonitis; capsule of liver thickened; hepatic veins distended; substance atrophied; spleen enlarged; 8 oz. of serum in pericardium. Heart 9 oz. Pulmonary valves fused together so as to form a kind of diaphragm with a round hole in the middle; the flaps were thickened and indurated. Pulmonary artery large and with thick coats. Walls of right ventricle hard and resisting.

(3) J. M—, male, æt. 39. Never rheumatism; health good, except an occasional winter cough; intemperate. Illness commenced 8 weeks before admission, with sudden cough and hæmoptysis, followed by œdema of legs. Face livid and anxious, dyspnœa, urine scanty, anasarca, bronchitis, and emphysema; cardiac sounds feeble; heart hypertrophied, basic systolic bruit; regurgitant pulse. Dropsy increased; bed sores appeared on sacrum and heels; frequently cough and sickness; wandering delirium. Died the 18th day after admission. P. M.—Left vena cava persistent, and opening into coronary sinus, which was greatly distended; the right vena cava was not in its usual position. Both ventricles hypertrophied, with dilatation.

3. *Aortic valvular disease.*—18 cases: 14 males and 4 females; 7 cases fatal. There was a history of rheumatic fever in 7 cases, of intemperance in 3, of gout in 2, of exposure in 3, of a blow of a heavy sack in 1, of a kick from a horse in 1, and of a strain in 1. In 9 there was a double murmur, a single diastolic murmur in 5, and a single systolic in 4. Dyspnœa occurred in 6, cough in 7, cardiac hypertrophy in 7, cardiac hypertrophy with dilatation in 3, dropsy in 5, palpitation (marked) in 4, hæmoptysis in 3, œdema of lungs in 1, congestion of liver in 5, cirrhosis of liver in 2, jaundice in 2, congestion of spleen, kidneys, &c., in 2, effusion into pleura in 2. There was atheroma of vessels in 4, albuminuria in 3, syncopic attacks in 2, and angina, emphysema, tremors, delirium, epistaxis, hæmatemesis, catarrh of stomach, cirrhosis of kidneys, sloughing of nose, hemiplegia of sensation, and cancer, in 1 case each respectively.

4. *Mitral valvular disease.*—44 cases: 22 males, 22 females; 10 cases fatal. There was a history of rheumatic fever in 26, of old-standing winter cough in 4, of intemperance in 4, of gout in 2, of diphtheria in 2, of scarlatina in 2, of rheumatism and scarlatina in 2, of exposure in 1. General atheromatous degeneration of vessels was marked in 2 cases. In 23 there was a single systolic apex murmur, a variable systolic murmur in 4, a double apex murmur in 15, a single presystolic murmur in 2, a cardiac thrill in 9, and hepatic double pulsation in 4. Dropsy was present in 28 cases, cardiac hypertrophy in 17, hypertrophy with dilatation in 7. As marked symptoms, dyspnœa occurred in 18 and orthopnœa in 8 cases. Enlarged liver was present in 11 cases, contracted nutmeg-liver in 4, jaundice in 4, dyspepsia and vomiting in 7. Congestion of lungs in 7, œdema of lungs in 3, induration of lungs in 2, pulmonary apoplexy in 2, tubercle of lung in 2, delirium in 3, albuminuria in 12, bronchitis in 16, hæmoptysis in 5, hæmatemesis in 2, hæmaturia in 3, pericarditis in 4, pleurisy in 1, tubercle of pleura in 1, pleuritic effusion in 2, pneumonia in 1, congestion of spleen and kidneys in 4, angina pectoris in 5, left hemiplegia in 2, transitory right hemiplegia with aphasia in 1, thrombosis of auricles in 1, thrombosis of veins of neck in 1.

5. *Aortic and mitral disease.*—28 cases, 15 of which proved fatal; 11 males and 4 females. The average age of the fatal cases was 37 years, the eldest being 61 and the youngest 14. In 3 cases death occurred from 8 to 10 months after the first attack of acute rheumatism; in 4, in from 3 to 5 months after cardiac symptoms were first noticed; in the remaining 8 the period of death varied from 1 to 2 years after the patient first noticed the results of cardiac disease. In 2 cases the disease probably lasted 9 to 10 years, but the data are insufficient to show the average duration of the rest of the fatal cases.

There was a history of rheumatic fever in 12, of intemperance in 4, of acute kidney disease in 2, of chronic bronchitis in 2, of syphilis in 1, and of scarlatina and rheumatism in 1.

Murmurs.—Mitral.		*Aortic.*	*Tricuspid.*	
Systolic	and	systolic		in 4
Systolic	and	diastolic		in 2
Systolic	and	systolic + diastolic . .		in 7
Systolic + presystolic	and	diastolic		in 7
Systolic + presystolic	and	systolic + diastolic . .		in 3
Systolic + presystolic	and	systolic		in 1

Mitral.	*Aortic.*	*Tricuspid.*	
Presystolic and	systolic + diastolic	. .	in 1
Presystolic and	systolic	. . . .	in 1
Presystolic and	systolic	and systolic .	in 1
Systolic + presystolic and	systolic	and systolic .	in 1

Cardiac thrill was well marked in 7 cases and cardiac hypertrophy in 10 cases; less marked hypertrophy was present in 7, hypertrophy with dilatation in 4, and with dilatation and fatty degeneration in 1. Anasarca was present in 20, ascites in 8, albuminuria in 14, haemoptysis in 4, haematemesis in 2, haematuria in 2, marked dyspnœa in 13, orthopnœa in 7, angina pectoris in 4, attacks of giddiness in 3, syncopic attacks in 2, delirium in 3, sleeplessness in 2, sickness and vomiting in 5, purpuric spots in 3, jaundice in 4, epileptic vertigo in 1, congestion of lungs in 5, œdema of lungs in 3, pulmonary apoplexy in 2, emphysema in 1, gangrene of lung in 1, bronchitis in 11, pleuritis in 2, pericardial effusion in 5, adherent pleura in 1, and adherent pericardium in 2; enlarged liver in 4, nutmeg liver in 3, enlarged fatty liver with arcus senilis in 2, atrophy of liver in 3, congestion of liver in 3, induration of liver in 1, congestion of spleen and kidneys in 2, enlarged and firm kidneys in 2, large white kidney in 1, cysts in kidney, with old infarcts, in 2, acute nephritis in 1, calcareous degeneration of valves in 3, atheroma of vessels in 5, and marked tricuspid incompetence in 2—in 1 case with vegetations on the valve.

XV.—CANCER OF STOMACH.

The relieved case was doubtful.

Fatal cases:—(1) Female, æt. 39. Ill 2 months; tumour; admitted with peritonitis. Died in 5 days. P. M.—Cancer of smaller curvature; infiltration of peritoneum and omentum; secondary growths in liver and lungs. (2) Male, æt. 62. Persistent vomiting 6 months; sharp pain; no tumour to be felt. P. M.—Cancer of pylorus, secondary nodules in peritoneum; chronic phthisis; thrombosis of left common iliac vein. (3) Female, æt. 58. Vomiting after food 6 months, constipation, emaciation; hard tumour to left of umbilicus; coffee-ground vomit, pain. P. M.—Cancer of pylorus; new growth over colon and in abdominal lymphatic glands. (4) Male, æt. 66. Dyspepsia, &c., 6 months; no tumour to be felt; no coffee-ground vomit; no pain in stomach; vomiting after food and constipation. P. M.—Cancer of pylorus; secondary growths in mesentery; partial stricture of bowel; hypostatic pneumonia.

XVI.—CIRRHOSIS OF LIVER.

Eighteen cases, 14 being males; 7 died, of whom 5 were examined post mortem. There was a history of syphilitic leprosy and yellow jaundice in 1, of syphilis in 2, of the moderate use of alcoholic stimulants in 3, and of intemperance in 8. The liver was considerably enlarged in 7, in 1 there being thickening of the hepatic vein with surrounding induration, in 1 perihepatitis, and in 2 concurrent congestion; moderately enlarged in 3, and diminished in bulk in the remaining 8. Pain over the liver was complained of in 7 cases. Disordered digestion—dyspepsia, nausea, vomiting, &c.—was a very common symptom, being marked in 11 of the 18; diarrhœa was present in 2. Ascites occurred in 7, enlargement of the abdominal veins in 2, and œdema of the legs in 2. The spleen was enlarged in 5, or nearly one third of the cases, and jaundice was only present in one ninth of the cases, 2. Hæmatemesis formed a most marked sign in half, or 9 cases. Epistaxis occurred in 2, hæmorrhoids in 2, albuminuria in 4, nephritis in 1, delirium in 2, fits in 2, coma in 1, enteritis in 1, pleurisy in 2, pneumonia in 2, peritonitis in 1, congestion of the lungs in 2, and calcification of the heart with adherent pericardium in 1.

XVII.—LEUKÆMIA.

C. J—, male, æt. 25, groom. Two years and a half before admission noticed a painless enlargement in left side of abdomen; continued at work for one year and a half, then attacks of epistaxis occurred nearly every day, over a period of 2 months. Several attacks of epistaxis since, but at longer intervals; dyspnœa, loss of appetite, flesh, and strength. Resp. 40; pulse 120. Systolic murmur at apex. One pale to three red corpuscles in blood, the pale corpuscles being of the ordinary character. Firm tumour in left side of abdomen, reaching from left hypochondrium nearly to Poupart's ligament, anteriorly to the middle line, posteriorly to spine; liver slightly enlarged; superficial abdominal veins dilated on right side.

Ung. Hyd. Biniod. ointment rubbed over tumour daily.

℞ Quin. Sulph., gr. iij;
T. Nux Vom., ♏x;
Fer. Sulph., gr. j;
Ac. Sulph. dil. ♏x, &c., t. d. s.

Remained in hospital 33 days; much relieved; no epistaxis except the day before he discharged himself (without leave).

E. M—, æt. 17, female, always delicate. Dyspnœa, anæmia, and weakness 3 years before admission. Slight rigors, vomiting, diarrhœa, pains in back and head, the day before admission. Anæmia, lips and tongue cyanotic, anorexia, diffused systolic murmur, best heard at middle of sternum; splenic dulness 4½ in.; pale corpuscles increased to three times normal.

Much relieved under a course of senna and Pil. Aloes co. Left hospital 35 days after admission; spleen still enlarged, but cardiac murmur absent; number of red corpuscles also proportionately increased.

A. S—, female, 63, married, 11 healthy children, youngest 20. Subject for 4 years to chronic rheumatic arthritis, and for 1½ years to bronchitis. 6 months before admission, feeling of weight in abdomen; 1 month before admission, 2 attacks of hæmatemesis (2 quarts). Anorexia, debility, anæmia, constipation. In splenic region a tumour with a hard anterior margin, movable, and slightly tender; liver margin to be felt below ribs; urine containing albumen, and granular casts; blood contains marked excess of pale corpuscles. Temperature 99° to 100°. Relieved under potassic iodide. In hospital 36 days.

E. K—, female, æt. 45, single. Rheumatic fever four years before admission; cough for several years; anæmia, and emaciation five months before admission. Dyspnœa; resp. 50; temp. 100·8°; pulse 100; anorexia; occasional vomiting; profuse perspirations; bronchitis, consolidation in both lungs posteriorly, chiefly confixed to upper lobes, liver slightly and spleen greatly enlarged; cervical glands swollen; nodular infiltration of skin; a firm, flattened mass in left Scarpa's triangle, another in left supra-clavicular region, and a small nodule below umbilicus. Pale corpuscles increased in blood. The temp. varied very much, from 98° to 102°. The bases of both lungs gradually became consolidated, the urine scanty; slight dropsy appeared, and subsequently right pleurisy. Became weaker and more anæmic, and on the 120th day after admission coma set in, and death two hours after. P.M.—General enlargement of lymphatic glands, lymphoid infiltration of skin, spleen 3 lbs. 15 oz., new growths in both lungs extending from roots inwards along the bronchi, increase of subarachnoid fluid and distension of ventricles of brain.

XVIII.—CHRONIC BRIGHT'S DISEASE—COMPLICATIONS.

(36 Cases.)

(This abstract does not include the fatal cases given in Table VII.)

There was a history of scarlatina in 4 cases, 2 occurring in childhood, rheumatism in 5, gout in 3, syphilis in 1, tubercle in 1, chronic supparation in 1, exposure to cold in 6, and chronic bronchitis in 3. The disease first showed itself after parturition in 4 cases, and there was a reliable history of alcoholism in 3.

Bronchitis complicated the disease in 4 cases, cough with profuse expectoration in 6, pneumonia in 6, systolic apex murmur in 5, accentuated second sound in 4, reduplication of sounds in 4, cardiac hypertrophy in 4, dilated heart in 1, diarrhœa in 3, vomiting in 2, neuro-retinitis in 3, intense headache in 3, pericarditis in 2, pleuritis in 2, congestion of liver in 2; and cirrhosis of liver, hæmatemesis, melæna, epistaxis, œdema of lung, enlarged spleen, erysipelas, phlebitis, sloughing of skin, emphysema, neuralgia, and uræmic convulsions in 1 case each respectively.

XIX.—DIABETES.

(1) Grandfather died of diabetes; patient was much relieved by dieting and 1 gr. opium t. d. (2) 1 brother insane; patient had inflammation of kidney, and is subject to gout. (3) Severe palpitation and systolic apex murmur. (4) Very nervous; jaundice eight years ago; a fit attended by loss of consciousness three years ago; average quantity of urine 15 pints; loss of memory; temperature occasionally as low as 95·6; much improvement under codeia, dose increased from 1, 4, 6, 8, to 9 grains t. d. The body weight increased under its influence, the temperature rose to normal, the urine passed was reduced in amount, and nearly equalled the milk drunk (about four pints daily).

XX.—PSEUDO-HYPERTROPHIC PARALYSIS.

One case, æt. 7, male. Father consumptive, mother choreic; patient weak from birth, worse last four years; one brother similarly affected, but in a more marked degree; one sister died of convulsions, æt. 7 months. Gradually increasing weakness of muscles of back and legs, tendency to fall, difficulty in rising up, intellect fairly good, no fits. Lower extremities hypertrophied, especially the calves and buttocks; gait peculiar, back arched. Temp. of legs slightly lowered, but variable in amount. Loss of electric contractility of muscles of legs, no contraction being produced by a Faradaic current sufficient to cause the contraction of a healthy muscle; with a continuous current 36 cells were required for the calves, while 20 sufficed for the back muscles. The muscle substance, when examined microscopically, showed increase in the interstitial tissue, atrophy and granular degeneration of some of the muscle fibres, and very close transverse striation of others; but this last peculiarity was believed to be purely artificial, the result of the mode of preparation, &c.

XXI.—RHEUMATIC FEVER.

1. *Acute.*—Of the 115 cases of acute rheumatism there were 51 cases of 1st attack, 37 of 2nd attack, 17 of 3rd attack, 4 of 4th attack, 4 of 5th attack, 1 of 6th attack, and 1 of 7th attack. Of the 51 cases of 1st attack 14 were uncomplicated, pericarditis occurred in 7, pericarditis and pleurisy in 2, endocarditis in 7, pericarditis and endocarditis in 7, pericarditis and pleurisy in 1, pericarditis and pneumonia in 2, pericarditis, endocarditis, and pleuro-pneumonia, in 1, æt. 22 (died), pericarditis, endocarditis, and pleuro-pneumonia, in 1, albuminuria in 1, inorganic murmurs in 3 (chorea being present in 1), albuminuria, pericarditis, delirium, and fits, in 1, erythema in 1, and torticollis and sore throat in 1. Bronchitis occurred in several of the above cases.

In the remaining 64 cases of 2nd and 3rd attacks, &c., 19 were uncomplicated, these being nearly all males; mitral disease was present in 27, aortic disease in 6, aortic and mitral disease in 4, prolonged systolic sound in 6, reduplicated second sound in 4, hypertrophy of the heart in 10, pericarditis in 19, pneumonia in 4, pleuritis in 3, pleuro-pneumonia in 3, bronchitis in 8, orthopnœa in 5, tubercle in apex of lung in 3, delirium in 5, albuminuria in 5, pustular eruption in 1, urticaria in 1, and abscesses in 1.

There was a rheumatic family history in 13 of the 51 cases of 1st attacks; in 3 the rheumatism set in after scarlatina, in 2 after mumps, in 3 after cessation of suckling. In 21 of the remaining 64 cases there was a well-marked family history of rheumatism; in 2 it occurred some months after scarlatina; in 5 women while suckling.

2. *Subacute.*—58 cases: 1st attack 24; 2nd, 14; 3rd, 6; 4th and 5th, &c., 14. *First attack.*—Uncomplicated, 11; hæmic murmur in 3, mammary abscess in 1, abscess of hand in 1, bronchitis and hæmoptysis in 1, valvular disease in 7, pericarditis in 1.

Subsequent attacks.—34; uncomplicated, 10. In the remaining 24: mitral disease in 7, aortic in 2, aortic and mitral in 2, pericarditis in 1, jaundice and sloughing of nose in 1, slight pericarditis and mitral disease in 1, pericarditis, mitral and aortic disease, accompanied by typhoid symptoms, in 1, optic neuritis in 1, incomplete left hemiplegia in 1, mitral disease and old pericarditis in 1, aortic disease and pneumonia (l. b.) in 1, pericarditis, mitral disease, and pleurisy, in 1, old mitral disease, capillary bronchitis, and incipient phthisis, in 1; tonsillitis in 1, and bronchitis in 2.

Three of the cases occurred during suckling, and 2 after parturition.

XXII.—TREATMENT OF RHEUMATIC FEVER BY SALICIN, SALICYLIC ACID, AND SODIC SALICYLATE.

α. *Salicin* was administered in 7 cases. 4 of these are given below, and represent fairly the unsatisfactory results obtained. (Salicin was also given in other febrile affections besides rheumatism, but it was far less efficacious than quinine.)

1. Gr. x, t. d.; temp. fell slowly from 103° to 99°.

2. Gr. xv every 2 hours; temp. rose instead of falling.

3. Gr. xxv every 2 hours; temp. 104·2°. After 8 doses pains not relieved, and temp. 102·8°.

4. Gr. xv every 2 hours; subacute. On 2nd day the salicin was given. After 11 doses the pains were easier, but the temp. was still high. Eighteen more 15-gr. doses were given, and then several 25-gr. doses, but the temp. was not reduced, and there was much deafness, &c.

β. *Salicylic acid* was given in about 9 cases: 5 are quoted.

1. Gr. iv every 4 hours; temp. 103·2; little or no effect after 10 doses.

2. Gr. ij every 4 hours; temp. 101·2°, fell to normal in 2 days; much sickness.

3. Gr. xx every 2 hours; temp. 100·6°, with commencing pericarditis. After 6 doses the pains and pericarditis were gone, and the temp. normal.

4. Gr. x every hour; temp. was gradually lowered.

5. Gr. xx every 2 hours; temp. 102°. After 340 grs. (17 doses), temp. 99·9°, no pain, no headache, slight delirium.

γ. *Salicylate of soda* was given in about 20 cases. The power of the drug in reducing temp. and in quickly abolishing pain was most marked. The perspiration was generally rendered very profuse and sour smelling; the urine gave indications of indican in several cases, and in 3 temporary albuminuria appeared. A tendency to relapse showed itself in some of the cases. (The salicylate was repeatedly used with great success in reducing high temperatures in other febrile affections, as typhus, &c.)

1. Gr. xx every 2 hours; temp. 103°; acute pains in joints. In 3 days temp. 99°, and pains gone.

2. Gr. xxx every 2 hours; temp. 101°. Temp. normal and pains gone after 4 doses. Deafness and occasional sickness.

3. Gr. xxx every 2 hours. Vomited after every dose, so its use had to be given up.

4. Gr. xxx every 2 hours; temp. 102° (Dec. 17th). After second dose deaf, but in less pain, temp. 101·3°; after third dose, giddy, profuse perspiration; after fourth, delirium (Dec. 18th). Twenty doses given in all. Dec. 19th, temp. 99°.

5. Gr. xxx every 2 hours; temp. 103°; commencing pericarditis (Oct. 4th). On evening of 5th, after 19 doses, no pericarditis, and temp. 99·4°.

6. Gr. xxx every 2 hours. At the end of 24 hours temp. 99·2°; then it rose rapidly to 106·4°, with albumen in the urine. A graduated bath given from 90° to 76° in 26 minutes; the temp. after the bath 96·6°. The salicylate was then continued for 12 hours; slept well and sweated profusely, an eruption of sudamina making its appearance.

7. Salicin gr. xxv every 2 hours, given on 7th day; temp. 104·2°. After

8 doses the pains were not relieved, and the temp. 102·8°. 8th day.—Temp. 103·2°; sod. salicylate gr. xxx every 4 hours; after 11 doses 99·6°. In this case (first attack with endo- and pericarditis) a relapse occurred on the 12th day, temp. gradually rising till the 20th day of illness to 104°, and continuing high until death occurred on the 31st day, double pneumonia having set in on the 22nd day.

8. Male, æt. 31; 2nd attack; pericarditis, systolic apex murmur, sore throat, and severe joint affection, suppurating sudamina; temp. 101° to 103°. Sodic sal. gr. xxx every 2 hours, commencing on 21st day of illness; temp. 103·2°, and gradually rising. 22nd day.—Less perspiration; no pains; tongue clean. 23rd day.—Slept well. 24th day.—Salicylate stopped; temp. 101°. 26th day.—Worse; temp. 103·1°; salicylate resumed. After 6 doses temp. 100·5°. 27th day.—Tremulous, slight delirium; temp. 99·2°; salicylate stopped. Small abscesses formed subsequently on the fingers, legs, &c.

9. Female, æt. 17; 2nd attack; old mitral murmur with hypertrophy; temp. 101·9°; pulse 140; resp. 48; dyspnœa. On the 13th day of disease and 4th after admission sod. sal. gr. xx every 2 hours; temp. 102·9°; in 6 hours temp. 102°. 14th day.—Temp. 100° at 7 a.m., 97·9° at 10·30 a.m: salicylate stopped. 15th.—Delirious all day; copious eruption of sudamina; cough; temp. 99·4°; resp. 44; pulse 120; pneumonia, right apex and base, pericarditis, and left pleurisy. Died on 18th day.

10. Sod. sal. gr. xx every 2 hours; temp. 103°. After 6 doses temp. 99°; a relapse.

11. Sod. sal. gr. xx every 2 hours; temp. 103°. After 4 doses temp. 99·8°. On the 2nd day (15th of disease) the temp. rose to 100° half an hour after midnight, but at 2 p.m. was 97·4°. On the 14th day the pains returned, and the temp. rose again to 100·2°; the salicylate was resumed, and the temp. fell to 98·6°.

12. Sod. sal. gr. xx 4 times a day; temp. normal in 2 days; relapse after 14 days; symptoms relieved again in a day by salicylate.

13. Female, æt. 17; 1st attack; sod. sal. gr. xx every 2 hours; pericarditis; temp. 103°; severe joint affection. 2nd day (15th of disease).—The salicylate was commenced. After 2 doses great dizziness, ringing in ears, but pains relieved; medicine stopped. 4th day.—Return of pain. Salicylate resumed, gr. xx every 6 hours for 2 days; cured.

14. Male. 6th day after admission (14th of disease).—Sod. sal. gr. xxx every 2 hours; temp. 103° at 12 noon, 101·4° at 9 p.m. 7th day.—Temp. 100·2° noon, 99·5° at 5 p.m.; head queer. 8th.—Temp. 99·6° at 12 noon, 98·4° at 2.30 p.m. After 4 doses patient said he could carry a sack of coals up stairs.

15. Male æt. 35; subacute. 3rd day after admission.—Sod. sal. gr. xxx every 2 hours; temp. 101·2°. After 9 doses free from pain, but stiff and perspiring; copious eruption of sudamina; deaf, singing in ears. 5th day.—Much better; perspiration still sour smelling; deafness nearly gone.

16. Female, æt. 26; subacute. On 2nd day salicin gr. xv every 2 hours. After 48 doses pains easier, but temp. still high. Eighteen more 15-gr. doses given, then several 25-gr. doses, but the temp. was not lowered, and there was much deafness, &c. The temp. fell to normal after nine 30-gr. doses of sodic salicylate.

17. Female, æt. 21; subacute. 2nd day after admission (9th day of illness).—

Sal. acid. gr. xx every 2 hours; temp. 102·2°. After 20 doses temp. normal; no delirium; slight deafness; profuse perspiration; sudamina. 4th day.—Well.

XXIII.—ABSCESS OF BRAIN.

C. M—, æt. 30, coachman; temperate and healthy. Five weeks before admission sudden loss of consciousness followed by double vision, severe occipital headache and vomiting. The headache is not constant. Has never had any loss of power in legs, but the right leg was convulsively drawn up on one occasion, and he has occasionally a feeling of constriction in the thumbs and fore and middle fingers of both hands. The tongue seems protruded to the left, and there is defective action of the right external rectus, and apparently also of the right superior oblique; can count fingers, but not always correctly; cannot see to read; double neuro-retinitis. Complains greatly of a feeling of jumping in the head. Temp. very variable, one day being 97° a.m. and 100·1° p.m., and another 103·3° a.m. and 98° p.m.; it fell gradually before death, which occurred 8 days after admission. P.M.—Softening of posterior lobe of right hemisphere, and in its middle an abscess the size of an orange, and having a distinct wall. Heart hypertrophied. Tuberculous-looking masses in base of right lung.

XXIV.—HEMIPLEGIA.

There was an equal number of right and left hemiplegia, and the cases were nearly equally divided between males and females (17 males and 15 females); but of the right, more than double the cases were males; and of left, nearly double were females. 7 cases died, but a post mortem was obtained only in 4, in each of which was found embolism with resulting softening,

1. RIGHT.—16 cases. There was a history of rheumatic fever in 2, of syphilis in 2, of rheumatism and syphilis in 2, of intemperance in 3. The paralysis set in with sudden loss of consciousness in 3, with gradually increasing unconsciousness in 4, and without loss of consciousness in 9. The paralysis was gradual and progressive in 3, and incomplete in 5. Embolism was the probable cause in 3, chronic softening in 3, and the rest were hæmorrhagic. They were all cases of first attack, except 3. Right facial paralysis was marked in 11 cases, left facial in 1. Aphasia occurred in 5 cases, partial aphasia in 2, and loss of articulating power in 2, impaired sensibility in 7, primary rigidity in 5, optic neuritis in 2, unequal pupils in 2, contracted pupils in 2, epileptiform fits in 4, rigors in 2, torticollis in 1, tendency to turn head to left in 1, muscular tremors and twitchings in 3, well-marked reflex action in 1, rapid wasting of muscles in 1, stertor in 3, and old left hemiplegia in 1. The arteries were rigid and tortuous in 5, the heart was hypertrophied in 8, and in 5 there was a systolic apex murmur, double in 1 case. Slight albuminuria was present in 3 cases.

Fatal cases.—(1) Pyæmia and pneumonia set in. During the rigors the temp. occasionally rose to 107°; subcutaneous injections of carbolic acid lowered the temp., which fell to normal before death. No post-mortem.

(2) Partial and slowly progressive right hemiplegia (embolic); leg and right arm affected. Involuntary twitchings of right leg, with slight rigidity, and shooting pains in right arm; dilated right pupil; deafness; flushing of face; crying; cystitis.

P.M.—General atheroma, especially of cerebral vessels; left middle cerebral converted into a fibrous cord; embolism of left anterior cerebral, also of left superior cerebellar, with patches of red softening. Suppurative nephritis and cardiac hypertrophy.

2. LEFT.—16 cases. History of syphilis in 2; of intemperance in one; of previous attack in 4. The paralysis occurred during sleep in 3; came on gradually in 4; with loss of consciousness in 5; without loss of consciousness in 4; and was preceded by numbness in 3. In 4 cases it was incomplete; in 2 the facial paralysis was very slight; the pupils were dilated in 2, unequal in 2, and contracted in 2. There was paralysis of the third nerve in 2; of the fourth in 1; deafness of right side in 1; and of left side in 1. Impaired sensibility was present in 6 cases; primary rigidity in 3; twitching of the muscles in 3; albuminuria, in 3; cardiac disease, in 5; rigid and tortuous arteries in 4.

***Fatal cases* 4.—(1.) Æt. 2½. Died of measles. No post mortem.**

(2.) Female, 24. Syphilis, never rheumatism. 27 years ago, while suffering from abscesses in groins, raised herself in bed, and became paralysed on left side, with incomplete loss of consciousness. Leg recovered first, but never completely. On admission incomplete left hemiplegia; no anæsthesia; pupils dilated; indistinct vision; cardiac hypertrophy; double mitral murmur; cardiac thrill. Died 18 days after admission. P.M.—Old softening of right corpus striatum; thromboses in left auricle; extreme stenosis mitral valve; syphilitic ulceration of tonsils, pharynx, and vagina.

(3.) Female, 48. Intemperate; epileptic fits; syphilis 10 years ago; no history of rheumatism; palpitation; occasional angina pectoris. Sudden vertigo day before admission, followed by left hemiplegia. No premonitory cerebral symptoms. Paralysis complete; no aphasia; intellect feeble, but answers rationally; sacral bed sore; cardiac hypertrophy, and double apex murmur. Died 25th day after admission. P.M.—Embolism of right internal carotid at entrance into cranial cavity, the clot extending into right middle cerebral artery; softening of nucleus caudatus, of white substance in front of it, of part of inferior frontal convolution, and of island of Reil. Diseased mitral valve, one of papillary muscles and adjoining mitral flap being involved in a hard nodular mass; slight thickening of aortic valve; dilatation of right auricule and ventricle; left auricle much dilated and hypertrophied. Gummata in liver and spleen.

(4) Male, 80. Found in street, semi-conscious and clinging to a railing; had a convulsive fit and vomited. On admission, quite unconscious; right pupil dilated; eyes oscillate; both arms drop when raised, most marked with left; mouth drawn to left; involuntary evacuation. Pulse 112, full; resp. regular. 15 minutes after a convulsive fit, chiefly affecting the right side, the mouth being drawn to left, the limbs extended and rigid, and a general tremor passing over the body; breathing stertorous. A series of fits followed, but after the inhalation of amyl nitrite they did not recur. During the fits the eyes were turned to the left, and the pupils were dilated, particularly the left pupil. Died day after admission. P.M.—Softening, with coagula in right occipital lobe; atheroma of cerebral vessels, especially of right side; thrombosis in several places; right lateral ventricle filled with serum, the posterior cornu being distended, and its floor softened and broken down. General atheroma of aorta; effusion into pleura; granular cystic kidneys.

XXV.—PARAPLEGIA.

13 cases; 2 fatal. 1 was probably reflex (ovarian); 1 was due to a tumour pressing on the cord; 1 to spinal curvature; and 1 probably to necrosis of spine. There was the history of accident to the back in 5 cases; of syphilis in 1; of rheumatic fever in 3; of gout in 1; of sexual excess in 2; and of sexual excess and intemperance in 1. The paralysis commenced with numbness in 4; with gradually increasing weakness and numbness in 3; suddenly with pain round body in 1; with pain and stiffness in nape of neck, followed by numbness and twitchings of hands and feet, and 2 days after paralysis of arms and legs, in 1; with gradual loss of power and sensation of pins and needles in 4. The paralysis was incomplete in 5 cases, and it chiefly affected the right leg in 28. The sensibility was lost in 2, and impaired in 4. There was a belt of numbness round waist, best marked on right side, in 1, and in 1 a painful spot in dorsal spine, with hyperæthesia of the parts below. There was incontinence of urine &c., in 7; difficulty of micturition in 3; cramps of the legs in 3; cramps of the arms in 1; numbness of the hands in 1; and rigidity of the legs in 1. The paralysis was complicated with hemiplegia in 1 case; with pericarditis in 1; with hectic in 2; with cardiac hypertrophy in 1; with albuminuria in 2; and with bed-sores in 2.

Case of Tumour pressing on Cord.—Blacksmith, æt. 24, healthy; no history of injury to back, though has sprained it several times lifting heavy weights. 8 months before admission, felt weak in the lumbar region, and noticed that there was a weakness on his walking, but he suffered no pain. Paralysis of the lower extremities, without loss of sensibility, set in gradually, and for two months previous to admission was unable to walk. After admission he complained of painful contractions of the adductor muscles of thighs, the cramp continuing for several hours at a time. Sensation became gradually impaired, and a slight feeling of numbness was present as high as the umbilicus. Pain was felt in the arms when the legs were drawn up. State 6 weeks after admission: Legs rigid, in a state of flexion; they cannot be straightened without severe pain, and they ache at night. Incontinence of urine and fæces, constipation, bed-sores, frequent cramps in left arm, especially on movement of the legs; hectic, temperature varying from 99° to 102·8°. Became gradually worse, and died 119 days after admission, or about a year from the time that spinal symptoms were first noticed. P.M.—Fibrous tumour on a nerve root, pressing upon the anterior surface of the cord at the lower end of the cervical enlargement, the left lateral column being also somewhat compressed. Hypertrophy of left ventricle; congestion of lungs; stricture and hypospadias; pyelitis; hypertrophic and contracted bladder.

XXVI.—LEAD PALSY.

4 cases, 1 fatal. *Fatal case.*—F. L—, æt. 52, plumber. Wrist-drop and colic for 6 years; gout twice; sleepless; blue line on gums; arteries hard and tortuous; cardiac hypertrophy, systolic apex bruit, albuminuria; had 2 fits of unconsciousness, pupils contracted, occasional delirium. P.M.—Granular contracted kidneys.

Non-fatal.—(1.) Æt. 43, white-lead japanner. "Rheumatic gout" for years;

colic 3 months ago; blue line; partial wrist-drop; loss of power in legs; albuminuria. (2.) Æt. 52, grainer. Entered hospital for sudden right hemiplegia; similar attack 6 years ago, with 2 convulsive fits; wrist-drop, and granular kidneys. (3.) Æt. 53, painter. 2 attacks of gout; left wrist-drop, muscles supplied by posterior interosseous alone paralysed; gouty deposits in left hand and in both ears.

XXVII.—NOTES OF TEMPERATURES.

(In addition to those already given in the preceding Abstracts, &c.)

Measles.—Average during appearance of eruption 103·4°; higher in the adults than in the children.

Smallpox.—Average in fever of invasion 104°; during secondary fever 102·2°; highest temperature (106·6°) was in a discrete case that recovered.

Scarlatina.—The average temperature was low, 101° to 102°. In 5 cases it rose to 104·5°, and 105·2°. In many the temperature fell to normal inside 2 days.

Enteric.—In children the temperature averaged from 104° to 106°. In one case (M., 5) the temperature repeatedly rose to 102°, and fell to 97·0°, without any sign or symptom to account for the variations being noticed. The morning temperature was higher than the evening in some of the cases. In many cases the temperature continued high for a few days after admission, and then fell an average of 3°; in several the fall occurred on the second day. Thus, 104° evening of admission; a.m. next day 100·5°; p.m. 101·5°. The average morning temperature ranged between 99° and 101°, the average evening temperature between 102° and 103°. In 8 cases the temperature rose as high as 105·0° and 106·8°.

Febricula.—Average, a.m. 99° to 100°; p.m. 102° to 103°; lasting 3 days.

In 2 the temperature rose to 105°.

A marked diminution in temperature was observed the day after admission in several of the cases.

Rheumatic Fever.—In 18 of the 115 cases the temperature rose above 105°, in 3 above 106°. In 19 cases there was a marked fall of nearly 3° the morning after admission.

Kidney Disease.—Acute: 102° to 103·7°: Chronic: in the non-fatal cases the temperature generally ranged below normal; but in the majority of the severe cases, and in those that proved fatal, the temperature was usually very low, 95° to 96°.

In 1 case the temperature fell from 98° to 95°, and then to 90° immediately before death. In a case in which gangrene occurred the average temperature till 4 days before death was 97° to 98°; the evening temperature then rose to 101°.

Tubercle.—Temperature very variable, 96° to 105°; average variation, 99° to 101°. Acute tuberculosis with tubercular meningitis (æt. 7), 3 days before death, temperature in axilla 87°; day before death, a.m. 83·7°, p.m. 85·7°.

In many of the phthisical cases the temperature fell several degrees after one or two days' rest in hospital without any treatment.

Pneumonia. Temperature 101·4° to 105°; average 100°.

Double: the temperature was not high as a rule—99° to 101° average. In some of the cases the temperature did not vary more than 1° to 1·5° in the 24 hours; in others it varied from 97° to 99° a.m., and 100° to 102° p.m.

In pleuro-pneumonia the average temperature was 102° to 103°.

In 3 of the cases of pneumonia the temperature was noticed to fall to 95·5° after the acute symptoms had passed off.

Empyema.—Fatal case: 102·8° to 104°; day before death, a.m. 102·1°; p.m. 108°. The average in the other cases was 100·7° to 102°, but in a few the range was as great as from 97° to 103° in the 24 hours.

Jaundice and Cirrhosis of Liver.—The temperature was usually low, 97° to 99°.

Chorea.—In a fatal case of chorea, in which pneumonia set in, the temperature rose rapidly to 108·2°.

MEDICAL REPORT.

1877.

By E. S. NORRIS, M.A., M.B. Cantab.,
MEDICAL REGISTRAR.

Table I.—General Statement.

	Males.		Females.		Total.
Number of patients in Medical Wards, on Jan. 1st, 1877	63	...	73	...	136
„ „ Dec. 31st, 1877	69	...	75	...	144
Number of patients discharged or died during the year 1877:					
Cured	317	...	355	...	672
Relieved	112	...	214	...	326
Unrelieved or other causes	48	...	63	...	111
Died	139	...	109	...	248
Transferred to Surgical Wards	8	...	6	...	14
	624	...	747	...	1371

TABLE II.—*General Table of Diseases.*

DISEASE.	Number of cases.			Age.			Cured.		Relieved.		Uncured or other cause		Died.		Average number of days in hospital	Mortality per cent	REMARKS.
	Total.	M	F	Average.	Youngest.	Eldest.	M	F.	M.	F	M	F	M	F			
GENERAL DISEASES AND FEVERS.																	
Measles	4	4	...	4	4 mos.	22	4	...	...	...	...	...	...	...	40	...	1 transferred.
Rötheln	1	1	...	4	...	...	1	...	...	...	...	...	...	...	10	...	
Scarlet fever	31	18	13	10	2	35	14	11	...	...	...	...	4	2	39·6	19	
Sequelæ of scarlet fever	5	3	2	5½	2	9	3	...	...	1	...	...	1	..	28	...	
Typhus fever	1	1	...	...	...	34	1	...	...	...	...	...	...	...	24	...	
Enteric fever	66	35	31	19·7	5	40	32	24	...	...	1	...	2	7	41·32	15	1 transferred to surgical ward, *vide* Table III.
Febricula	8	3	5	16·3	7	26	3	5	...	...	...	...	...	...	17·69	...	
Intermittent fever	3	3	...	37	20	54	3	...	...	...	...	...	...	...	15	...	
Diphtheria (membranous croup)	11	4	7	10	14 mos.	25	...	5	...	...	...	...	4	2	11·3	54	
Erysipelas	19	10	9	31	4	57	10	9	...	...	...	...	...	...	27·3	...	
Variola	12	7	5	...	...	...	5	4	...	...	...	...	2	1	...	25·1	
Varicella	3	2	1	4	1½	7	2	1	...	...	...	...	...	...	23	...	
Influenza	2	1	1	...	...	...	1	1	...	...	...	...	...	...	...	...	
Pyæmia	3	3	...	25	18	25	...	...	...	...	...	...	3	...	7	...	2 cases had necrosis of of temporal bone.
Rheumatic fever—																	
Acute and subacute	141	63	78	24	9	49	61	72	1	3	...	...	1	3	31	2·89	1 transferred, *vide* Table IV.
Chronic rheumatism	2	2	...	40	30	50	1	...	1	...	...	...	...	...	37·5	...	

Gonorrhœal rheumatism	2	2	...	20	17	24	1	...	...	...	1	...	...	...	45·5	...	1 to surgical ward.
Rheumatoid arthritis	5	1	4	36·2	21	55	...	1	1	1	...	1	...	1	60·4	...	1 to surgical ward.
Gout	18	16	2	40	28	56	15	2	1	...	...	...	...	...	28·5	...	
Diabetes	11	8	3	28·9	8	43	...	...	4	...	1	...	3	3	38	54	
Purpura hæmorrhagica	3	2	1	15	11 wks.	39	1	1	1	...	...	...	...	...	17	...	
Anæmia and chlorosis	10	...	10	22	13	42	...	7	...	2	...	...	...	1	22	...	1 transferred to obstetric ward.
Lymphadenoma and leukæmia	3	1	2	9·6	4	18	...	...	...	...	...	1	2	...	35	...	
Addison's disease	2	...	2	30	...	30	...	...	...	1	...	1	...	...	27	...	
Exophthalmic goître	5	...	5	27	19	42	...	...	...	2	...	2	...	1	38	...	
Leprosy	2	1	1	...	23	29	...	...	...	...	1	1	...	...	...	...	
General tuberculosis	5	2	3	11·8	5	20	...	...	...	...	...	...	2	3	17·6	...	
NERVOUS SYSTEM.																	
Acute meningitis	2	1	1	...	4 mos.	...	...	...	...	...	...	...	1	1	...	...	
Tubercular meningitis	3	0	3	...	...	...	...	...	...	...	...	...	...	3	11	...	
Tumour of brain	3	2	1	23	9	38	...	...	1	...	1	...	...	1	95	...	
Abscess of brain	2	2	...	21·5	20	23	...	...	...	...	...	...	2	...	3·5	...	
Cerebral hæmorrhage	6	4	2	51	40	63	...	...	2	1	...	...	2	1	42	...	
Hemiplegia—																	
Right	16	13	3	40	6	64	...	1	12	2	...	...	1	...	69	...	
Left	13	8	5	48	32	80	...	1	5	4	1	...	2	...	55	...	
Paraplegia	10	6	4	36	24	55	...	1	2	...	2	3	2	...	46·6	...	
Tabes dorsalis	7	4	3	41	29	63	...	...	2	2	1	1	1	...	45	...	
Disseminated sclerosis	2	1	1	44	30	57	...	...	1	...	1	...	...	...	20·3	...	
Convulsions	2	1	1	...	...	...	1	1	...	...	...	...	...	...	...	...	
Epilepsy	13	8	5	20	10	50	2	1	5	4	1	...	...	...	15	...	
Chorea	25	8	17	13·5	7	46	6	4	1	13	1	...	...	...	55	...	
Hysteria	15	...	15	23	16	32	...	5	...	6	...	4	...	...	19	...	
Progressive muscular atrophy	5	5	...	34·2	20	47	...	...	3	...	2	...	...	...	97·4	...	
Paralysis agitans	1	1	...	...	...	63	...	...	1	...	...	...	...	...	19	...	
Tetanus	2	2	...	...	...	50	...	...	...	...	...	...	2	...	...	...	
Facial paralysis	3	2	1	...	36	51	...	...	1	1	1	...	...	...	...	...	
Spasmodic torticollis	1	1	1	50	...	...	...	...	...	...	1	1	...	...	...	...	
Obscure nervous disease	6	6	...	...	34	44	...	...	4	...	1	...	1	...	...	...	No post mortem on fatal case.

TABLE II—*continued.*

DISEASE	Number of Cases			Age			Cured		Relieved		Unrelieved		Dead		[illegible]	[illegible]	REMARKS
	Total	M.	F.	Average	Youngest	Oldest	M.	F.	M.	F.	M.	F.	M.	F.			
NERVOUS SYSTEM (*continued*).																	
Neuralgia—																	
Facial	1	...	1	...	...	73	...	..	...	1			...			..	
Intercostal	2	1	1		22	...	...	1	1								
Sciatica	5	2	3		34	68	2	2	...	1	..	..		.			
Mental diseases—																	
General paralysis	1	1	...	...	..	41	...	...	...	..	1			...			
Mania	1	1	...	..	15	...	1	...	...	...	.					.	
Melancholia	1	1	...	...	...	36	...	..	.	...	1				..		
CIRCULATORY SYSTEM.																	
Heart (muscular tissue of)—																	
Fatty degeneration	5	3	2	..	59	67	...	...	...	1	...	...	3	1	...	.	
Hypertrophy	3	1	2	...	...	56	...	...	...	1	...	...	.	2	...		1 had apoplexy of lung.
Malformation	1	...	1	10	...	...	...	...	...	...	..	..	.	1			
Valvular diseases—																	
Mitral	60	33	27	29	8	73	...	...	22	18	2		9	9	.	30	*Vide* Table V.
Aortic	20	14	6	36	20	63	...	...	7	5	...	...	7	1	...		
Aneurism of aorta, &c.	11	9	2	..	34	54	..	...	5	...	...	1	4	1	...	..	2 innominate aneurism.
Disease of veins—																	
Phlebitis	5	3	2	...	19	47	3	2	...	...	..				—	...	
RESPIRATORY SYSTEM.																	
Laryngitis	6	3	3	...	4	23	1	2	1	..	...		1	1	..	...	
Asthma	1	1	...	...	...	25	..	...	..	1	...	...	...	...	—	—	
Phthisis	51	21	30	...	11	60	..	...	12	14	...	2	9	11	...	—	*Vide* Special Abstracts.

Hæmoptysis	8	7	1	...	20	57	...	...	6	...	...	1	1	...	...	...	
Bronchitis, acute . . .	5	3	2	...	4	46	3	1	...	...	...	...	1	...	...	...	
„ chronic . .	48	26	22	1	25	67	8	3	13	14	...	...	5	5	...	...	
Broncho-pneumonia . .	19	7	5	...	1	23	5	5	1	...	...	...	1	...	...	...	
Pleuro-pneumonia . .	18	14	4	...	15	72	11	3	...	...	1	...	2	1	...	...	
Acute pneumonia—																	
Right	17	14	3	...	9	59	9	1	1	1	...	...	4	1	...	...	*Vide* Special Abstracts.
Left	17	12	5	...	2½	44	9	5	...	...	...	...	3	...	...	...	Ditto.
Double	7	4	3	...	11	46	...	2	...	...	...	...	4	1	...	...	Ditto.
Pleurisy—																	
Right	16	9	7	...	10	62	8	6	1	...	...	...	...	1	...	...	
Left	11	8	3	...	13	55	8	3	...	...	...	...	...	...	...	...	
Empyema—																	
Right	5	4	1	...	3	45	1	...	2	1	...	...	1	...	...	...	
Left	4	1	3	...	3	54	...	1	...	2	...	...	1	...	...	...	
Hydatid of lung . . .	1	1	...	...	...	46	...	...	1	...	...	...	...	...	...	...	
Intra-thoracic tumour . .	3	3	...	...	...	39	...	...	1	...	2	...	...	...	...	...	
Foreign body in bronchus .	1	...	1	...	9	...	...	1	...	...	...	...	...	...	...	...	Tracheotomy performed
DIGESTIVE SYSTEM.																	
Ulcerative stomatitis . .	1	...	1	...	7	...	...	1	...	...	...	...	...	...	...	...	
Tonsillitis	9	4	5	...	7	31	4	5	...	...	...	...	...	...	...	...	
Pharyngitis	2	1	1	...	2	25	1	1	...	...	...	...	...	...	...	...	
Œsophago-tracheal fistula .	1	1	...	...	...	52	...	...	...	...	...	...	1	...	...	...	
Stomach.																	
Dyspepsia	8	4	4	...	8	47	2	2	2	2	...	...	...	...	...	...	
Vomiting	12	7	5	...	14	58	4	2	3	3	...	...	...	...	...	...	
Ulcer of stomach . .	9	...	9	...	7	34	...	6	...	2	...	...	...	1	...	...	
Malignant disease of stomach	14	9	5	52	40	70	...	...	...	...	4	2	5	3	...	...	
Hæmatemesis . . .	8	3	5	...	22	36	3	5	...	...	...	...	...	...	...	...	
Intestines.																	
Diarrhœa	8	6	2	...	3	52	5	2	...	...	...	...	1	...	...	...	
Dysentery	3	2	1	...	...	...	...	...	1	...	...	1	1	...	...	...	
Colic	3	2	1	...	...	32	2	1	...	...	...	...	...	...	...	...	
Typhlitis and peritonitis .	4	3	1	...	17	34	3	1	...	...	...	...	...	...	...	...	
Constipation . . .	5	2	3	...	23	47	3	3	...	...	...	...	...	...	...	...	

TABLE II—*continued.*

DISEASE	Number of cases.			Age			Cured		Relieved		Unrelieved or other causes		Died		Average number of days in hospital	Mortality per cent.	REMARKS
	Total.	M	F	Average	Youngest	Eldest	M.	F.	M.	F.	M.	F.	M.	F.			
DIGESTIVE SYSTEM (*continued*).																	
Intestines.																	
Intestinal obstruction	4	4	...	...	56	60	...	...	...	...	...	...	4	...		...	
Intestinal worms	6	4	2	...	3	4	4	1	...	1	...	...	...	...			
Ascites (of doubtful origin)	9	6	3	...	9	64	...	...	5	2	1	1	...	...		...	
Malignant disease of peritoneum	5	4	1	41	35	59	...	...	...	...	...	...	4	1			
Tubercular peritonitis	2	...	2		17	22	...	...	...	...	...	...	...	2	...	...	
Local peritonitis	3	1	2		26	53	1	2	...	...	...	...	...	...	...	...	
Abdominal tumours	6	3	3	...	25	42	...	...	...	2	...	2	1	1		...	1 transferred.
Liver.																	
Cirrhosis	21	12	9	...	24	46	...	...	5	5	3	...	4	1	...	...	
Enlargement	10	9	1	...	19	69	...	...	3	1	2	...	1	...		...	
Perihepatitis	2	2	...	...	22	25	2	...	...	...	...	...	...	...	...	...	
Abscess of liver	5	3	2	...	...	...	...	...	...	...	1	1	2	1	...	...	
Jaundice	8	5	3	...	5½	54	3	3	2	...	...	...	...	...		...	
Biliary colic	4	...	4	...	32	50	...	3	...	1	...		...	...	...	...	
Hydatids	4	3	1	...	34	40			2	...	...	...	1	1	...	...	
Enlarged spleen	3	2	1	...	2	36	...	...	2	...	...	...	...	1	...	...	
URINARY ORGANS.																	
Acute nephritis	30	15	15	...	2	52	2	5	7	6	4	1	2	3	...	...	
Chronic Bright's disease	49	29	20	...	...	60	...	...	15	12	2	...	12	8		...	1 transferred.
Tumour of kidney	2	...	2	...	27	54	...	...	...	...	...	2	...	...	...	...	
Renal colic	2	2	...	...	...	...	2	...	...	...	...	...	...	...	...	...	
Hæmaturia	2	2	...	...	...	...	2	...	...	...	...	...	...	...	...	...	

Dysuria	1	...	1	...	...	...	...	...	...	1	...	...	...	...	...	...	
SKIN.																	
Eczema	5	2	3	...	5	53	1	3	...	...	1	...	...	...	...	...	
Psoriasis	3	...	3	...	30	32	...	2	...	...	...	1	...	...	...	...	
Urticaria	1	...	1	28	...	...	...	1	...	...	...	...	...	...	...	...	
Pemphigus	1	...	1	13	...	...	...	1	...	...	...	...	...	...	...	...	
Erythema nodosum	3	...	3	...	10	34	...	3	...	...	...	...	...	...	...	...	
Epidemic roseola	1	1	...	20	...	...	1	...	...	...	...	...	...	...	...	...	
MUSCULAR SYSTEM AND LOCOMOTORY.																	
Pseudo-hypertrophic paralysis	3	3	...	...	8	11	...	...	...	...	3	...	...	...	...	...	
Lumbago	4	4	...	...	36	66	4	...	...	...	...	...	...	...	...	...	
OSSEOUS SYSTEM.																	
Periostitis	8	3	5	...	9	30	3	3	...	1	...	1	...	...	...	...	2 transferred to surgical ward.
Various	8	5	3	...	6	42	2	2	2	1	1	...	...	...	...	...	
External tumours	4	2	2	...	12	17	1	1	1	1	...	...	...	...	...	...	
POISONS.																	
Alcoholic.																	
Intoxication	6	5	1	...	18	75	4	1	1	...	...	...	...	...	...	...	
Delirium tremens	8	7	1	...	32	43	7	1	...	...	...	...	...	...	...	...	
Lead colic	5	5	...	...	...	...	...	5	...	...	...	...	...	...	...	...	
Lead paralysis	4	4	...	...	26	29	...	...	3	...	...	...	1	...	...	...	
Sulphuric acid	2	...	2	...	1	8	...	1	...	...	...	...	...	1	...	...	
Carbolic acid	1	1	...	3	...	...	1	...	...	...	...	...	...	...	...	...	
"Varnish"	1	...	1	...	...	...	...	1	...	...	...	...	...	...	4	...	
Debility	16	3	13	...	3	49	1	6	2	6	...	1	...	...	...	...	
Epistaxis	4	3	1	...	...	...	3	1	...	...	...	...	...	...	...	...	
Immersion	8	5	3	...	3	75	4	3	...	...	...	...	1	...	...	...	
Miscellaneous, surgical, &c.	23	12	11	...	...	...	6	9	4	...	2	...	...	2	...	...	2 admitted dead. No post mortem.

TABLE II—*continued.*

DISEASE.	Number of cases.	Married.	Single.	Age.			Cured.	Relieved.	Unrelieved or other cause.	Died.	REMARKS.
				Average.	Eldest.	Youngest.					
FEMALE GENERATIVE ORGANS.											
Amenorrhœa	3	2	1	20	22	19	1	2	...	...	
Dysmenorrhœa	9	6	3	...	34	20	5	4	...	...	
Menorrhagia	5	3	2	...	52	22	2	2	1	...	
Metrorrhagia	5	4	1	...	43	17	2	3	...	...	1 transferred to surgical ward.
Leucorrhœa	1	1	...	30	...	...	...	1	...	...	
Metritis, peri- and pelvic cellulitis	15	13	2	...	43	22	9	5	1	...	
Pelvic hæmatocele	2	2	...	...	40	28	2	...	...	...	
,, abscess	2	2	...	...	...	...	1	1	...	1	1 fatal, erysipelas.
,, tumour (nature doubtful)	4	3	1	...	44	40	...	1	3	...	
Uterus.											
Congestion of	2	1	1	...	27	25	2	...	...	...	
Prolapse of	1	1	...	45	...	...	...	1	...	...	
Anteflexion and version of	5	4	1	...	39	20	3	2	...	...	
Retroflexion and version of	7	4	3	...	44	20	1	6	...	...	
Endometritis	9	9	...	...	44	21	6	3	...	...	
Polypus uteri	7	6	1	...	70	35	3	4	...	...	
Fibroid uteri	9	5	4	...	54	32	...	...	9	...	
Carcinoma uteri	20	17	3	...	63	27	...	12	7	1	
Subinvolution	2	2	...	...	32	28	2	...	...	...	
Cervix.											
Contracted	1	1	...	30	...	...	1	...	...	...	
Hypertrophy of	2	2	...	...	40	33	...	2	...	...	
Endocervicitis	6	6	...	...	...	...	4	2	...	...	

Epithelioma of .	6	4	2	...	53	29	...	2	4	...	
Ovaries.											
Ovaritis	1	1	...	21	...	...	1	...	...	...	
Ovarian neuralgia	1	1	...	...	...	...	...	1	...	...	
„ tumour	3	2	1	...	58	34	...	2	1	...	1 transferred.
„ cyst	9	8	1	...	54	24	...	3	3	3	1 transferred.
Vagina and perinæum.											
Ulceration of vagina	2	2	...	36	50	23	2	...	...	...	
Cyst in posterior wall of vagina	2	1	1	...	30	19	1	1	...	...	
Double vagina	1	1	...	27	...	...	...	1	...	...	
Fistula in vagina	4	4	...	...	30	25	1	2	1	...	
Ruptured perinæum	7	7	...	...	44	21	7	...	...	...	
Adhesive vagina	1	...	1	50	...	...	...	...	1	...	Transferred.
Vulva.											
Psoriasis of	1	1	...	44	...	...	1	...	...	...	
Cyst in labium	1	1	...	24	...	...	1	...	...	...	
Hæmatoma of labium	1	1	...	27	...	...	1	...	...	...	
Urethra.											
Vascular excrescence of	1	1	...	60	...	...	1	...	...	...	
Urethral disease	1	1	...	33	...	...	1	...	...	...	
Disorders and sequelæ of pregnancy.											
Abortion	2	2	...	...	35	29	2	...	...	...	
Hæmorrhage after abortion	2	2	...	...	38	29	1	...	...	1	
Phlebitis	2	2	...	...	44	37	2	...	...	...	
Pregnancy	3	2	1	...	...	21	2	...	...	1	Cæsarian section performed. Child died.
Sequelæ of pregnancy	1	1	...	32	...	...	1	...	...	...	
Extra-uterine fœtation	1	1	...	...	...	...	...	...	...	1	Operation. Child died.
Miscellaneous	5	4	1	...	44	19	3	1	...	1	

TABLE III.—*Enteric Fever.*

No.	Name.	Sex.	Age.	Previous illness. Days.	Days in hospital.	Access.	Eruption spots.	Diarrhœa.	Symptoms, remarks, &c.	Result.
1	J. D.	M.	25	14	68	Gradual	Distinct	None	Headache, weakness; no abdominal tenderness; temp. on admission 101·6°; blue lines on gums	C.
2	J. B.	M.	16	4	50	Sudden	...	Bowels confined	Headache, nausea, vomiting; temp. on admission 102·5°: 2 days after, 103·2° a.m., 102·6° p.m.	C.
3	E. T.	F.	14	7	79	Gradual	A few doubtful ones	None	Shivering, langour, anorexia	C.
4	I. S.	M.	27	...	37	,,	A few	Bowels loose	Sickness, headache, slight cough	C.
5	M. M.	F.	18	14	73	,,	None	Diarrhœa one week before admission	Headache, shivering and nausea, diarrhœa; temp. 103 a.m. No P.M.	D.
6	R. S.	M.	29	7	45	,,	Several	None	Sickness, anorexia	C.
7	R. C.	F.	13	14	36	Sudden	Two spots	Diarrhœa three days	Pain in joints, abdomen tumid and tender; highest temp. 105·8°. P.M.—Perforation, acute peritonitis	D.
8	M. D.	F.	11	14	9	Gradual	...	None	Hæmorrhage from bowel. P.M.—Ulceration of small intestine	D.
9	S. L.	F.	29	10	35	,,	None	,,	Shivering, pain over abdomen	C.
10	G. W.	M.	20	14	40	,,	Several	,,	Sod. salicyl.; delirium; temp. 104·8°; 2 days after medicine 99·8	C.
11	J. R.	F.	22	14	39	,,	A few doubtful ones	Severe before admission	Pain all over and weakness	C.
12	F. S.	F.	26	21	35	,,	Some	Slight	Headache, weakness, and delirium	C.
13	E. S.	F.	19	4	31	Sudden	None at first, several later	Some	Nausea, shivering, diarrhœa, headache; highest temp. 106·4°. Sister of previous case	C.
14	J. O.	M.	40	14	19	Gradual	None	,,	Languid, headache, and diarrhœa	C.
15	J. M.	M.	14	21	37	,,	...	None	Abdominal pain, sickness; temp. 104·4	C.
16	J. W.	M.	13	14	49	,,	Several	,,	Headache, shivering; highest temp. 104	C.
17	J. P.	M.	12	6	52	Sudden	Distinct	Severe	Shivering, thirst; temp. 104·4	C.
18	A. W.	F.	17	13	29	Gradual	Some	Slight	Weakness, nausea, diarrhœa	C.
19	J. J.	M.	26	14	47	Sudden	A few	None	Prostration; temp. 104·3°	C.
20	A. S.	F.	31	3	29	Gradual	None	,,	Pains all over, debility; temp. 102·4° a.m., 103·2° p.m.	C.

21	T. C.	M.	8	21	49	„	Some	„	Chilliness and headache; kept bed one week before admission; temp. 104·4°, pulse 126, resp. 86	C.
22	W. B.	M.	17	21	41	„	A few	Slight at first; numerous 3 days after admission	Felt faint and weak; temp. 104·4° p.m., 101·4° a.m.; 3 days after admission, temp. 101·4° a.m., 103° p.m.	C.
23	H. B.	M.	20	3	94	Sudden	Some	Some	Abdominal pain, diarrhœa and vomiting, periostitis of right tibia 8 days after admission	C.
24	L. B.	F.	17	6 wks.?	7	?	Several	...	Drowsiness; temp. 103·4°, resp. 40, pulse 130; four days after admission perforation and peritonitis. No P.M.	D.
25	J. K.	F.	16	14	48	Gradual	...	...	Transferred from Westminster Hospital. Delirious	C.
26	G. L.	M.	16	14	45	„	None	None	Bath treatment, had three; temp. came down 5° or 6° after each bath; marked relief from other symptoms	C.
27	J. G.	M.	36	14	14	„	...	...	Bath treatment, had four baths; marked delirium; brandy 8 oz.; highest temp. 104·7°. P.M.—Ulceration of small intestines, cardiac disease	D.
28	J. K.	F.	27	21	37	„	Some	Some	Temp. normal 9 days after admission; one month from admission symptoms of perforation. P.M.—Several healed ulcers, perforation, acute peritonitis	D.
29	M. W.	F.	11	2	29	Sudden	None	Slight	No distension of abdomen; diarrhœa ceased 2 days after admission	C.
30	L. W.	F.	10	27	60	Gradual	Abundant	„	Abdominal pain and headache; temp. 103°; 8 days after, temp. 98·2° a.m., 102·4° p.m.	C.
31	S. C.	F.	19	...	4	...	...	...	Temp. 104·8°; no history obtained. P.M.—Perforation of intestine, peritonitis	D.
32	E. C.	F.	8	6	26	Gradual	One	Some	Nausea, diarrhœa; highest temp. 103° p.m.; temp. raised a.m. 100° to 100·4°	C.
33	C. M.	M.	19	5	10	„	None	Slight	Bath treatment; 9 days after admission symptoms of pneumonia. P.M.—Ulceration of intestines, pneumonia	D.
34	A. J.	F.	5	4	15	„	„	None	Temp. raised a.m. from 102° to 103°, p.m. 102·8° to 104·6°; 13 days after admission laryngeal symptoms came on; diphtheria; died 2 days later. P.M.—Ulceration of small intestine, diphtheria, broncho-pneumonia	D.
35	T. B.	M.	27	9	36	„	„	„	Pains in limbs and stomach; had right pleurisy, first symptoms 13 days after admission; temp. on admission 105·1°; given a graduated bath	C.

TABLE III—*continued.*

No	Name.	Sex.	Age.	Previous illness. Days.	Days in hospital.	Access.	Eruption spots	Diarrhœa.	Symptoms, remarks, &c.	Result
36	A. W.	F.	20	9	51	Gradual	Some	None	2 days after admission temp. 105·5°, reduced to 102°; tepid bath; 2 days later second bath, temp. 105·8° to 101·8°; temp. not noted over 104° again	C.
37	E. S.	F.	22	6	42	„	„	Slight	Temp. on admission 102·8°, with shivering, retching, and diarrhœa	C.
38	F. A.	F.	15	7	42	„	„	„	Shivering, nausea, and diarrhœa; temp. on admission 103·8°; highest temp. 104·6°; temp. normal 14 days after admission	C.
39	A. H.	M.	31	14	46	„	Several	Some at first, then confined	Temp. on admission 103°; delirium: 2 days after admission temp. 101·4°	C.
40	W. B.	M.	8	3	41	„	A few	None	Headache and sickness; temp. on admission 104°; the following day, a.m., 103·9°	C.
41	S. C.	F.	24	21	81	„	None	„	Husband in hospital suffering from enteric; bronchitis, acute tenderness over splenic region	C.
42	L. W.	F.	19	6	89	„	A few	Some at first	Temp. on admission 103°, temp. a.m. 101·8° to 104°, highest temp. 105·4°; cold bath, temp. reduced to 100·2°; cold wet packing; 6 weeks after admission temp. normal	C.
43	C. F.	F.	20	14	35	„	Some on back	None	Temp. on admission 100·2°; temp. varied from a.m. 99° to 100·2°, p.m. 101° to 103·6°	C.
44	J. J.	M.	27	14	65	„	None	„	Temp. on admission 104·4°, the following morning 103°; temp. normal 3 weeks after admission; otorrhœa	C.
45	J. M.	M.	15	9	42	„	Several	Marked	Temp. on admission 103·4°; temp. normal 14 days after admission	C.
46	F. S.	M.	25	28 worse 4	43	„	...	Some	Pain across chest and loins, diarrhœa; temp. on admission 101°	C.
47	G. S.	M.	35	14	37	„	None	None	Temp. evening of admission 102·8°, following morning 99·4°, p.m. 101·8°	C.
48	E. A.	F.	10	14	37	„	„	Slight	Nausea and weakness, bowels relaxed; temp. 103·8° on admission; a.m. 101°, p.m. 102°	C.

49	W. D.	M.	15	14	58	"	A few	None	Weakness; temp. 103·6° on admission	C.
50	L. S.	F.	21	7	34	Sudden	None	Some before admission	Shivering, vomiting, and diarrhœa; temp. on admission 104·2°; slight cough	C.
51	W. D.	M.	15	9	50	Gradual	Numerous	Rather severe before admission	Diarrhœa; temp. 100·8° on admission	C.
52	C. C.	M.	15	14	42	"	Some doubtful spots	None	Giddiness and headache; temp. on admission 100·3°; a mild case; temp. 4 days after admission 96·2°	C.
53	J. S.	M.	30	4	25	Sudden	None	Severe on admission	Pain in back and left side; 3 days after admission signs of pneumonia apex left lung	C.
54	F. F.	M.	17	5 wks. worse, 5 days	33	Gradual	Abundant over back, abdomen & chest	None	Vertigo and weakness; temp. was normal 5 days after admission	C.
55	J. S.	M.	19	21	59	"	Several	Slight	General malaise, slight cough, slight deafness night before admission; had the bath treatment, five in number, with marked relief; 29 days after admission had relapse	C.
56	W. H.	M.	29	8	28	"	...	Bowels relaxed after pills	Pain in back and headache; temp. evening of admission, p.m. 104°, a.m. 101·6°	C.
57	A. L.	M.	13	6	23	Sudden	Two rose-coloured vesicular spots	None	Had four rigors day of attack; temp. on admission 101·4°, resp. 28, pulse 96; next day 101·9° a.m., p.m. 102·1°; following day 100·2°, pulse 90, resp. 26; normal 16 days after admission	C.
58	E. H.	F.	22	13	26	"	A few on back and abdomen	Slight a week before admission	Nausea, shivering, and diarrhœa; delirium; abdominal pain; temp. on admission 102·8°, resp. 28, pulse 104; following day 105·2° and 105° p.m.; temp. normal 10 days after admission	C.
59	L. D.	F.	17	14	38	"	None on abdomen; some two days later	None	Shivering, nausea, and anorexia; prostration; temp. 105°; temp. in morning during first week 100·2° to 102·2°, p.m. 102·2° to 104°; normal 14 days after admission	C.
60	C. C.	M.	34	2 wks.	...	Gradual	Some	"	Delirium; bath treatment; temp. 103°; had gangrene of right foot; transferred to surgical ward	R.
61	J. A.	F.	29	16	88	"	"	Slight	Temp. 103°; relapse	—
62	A. E.	M.	20	4	75	"	Abundant	Some	Temp. 104° on admission; relapse	C.

TABLE IV.—*Acute Rheumatism.*

No.	Name.	Sex.	Age.	Number of attacks.	Duration before admission.	Days in hospital.	Character.	Condition of heart, &c.	Remarks, treatment, &c.	Result.
1	J. W.	M.	19	1st	5 days	41	Acute	Pericarditis, much effusion	Slight pneumonia of base of right lung	C.
2	W. M.	M.	34	2nd	18 ,,	26	...	No murmur	Ill a short time 12 months ago with rheumatism	C.
3	L. F.	F.	17	2nd	4 ,,	27	Acute	Systolic apex bruit	1st attack 1 year previously	C.
4	S. T.	F.	42	1st	3 wks.	40	Subacute	Healthy	After an injury to wrist	R.
5	G. F.	M.	39	8th	5 days	18	Acute	Reduplication first found at apex	1st attack at 15 years old	C.
6	J. S.	F.	32	...	...	101	,,	Cardiac dulness increased, no friction	Pneumonia base both lungs; delirium; temp. 103·4°; pulse 120	R.
7	J. H.	F.	37	1st	1 wk.	60	,,	Healthy	After confinement	C.
8	J. G.	M.	26	3rd	1 ,,	41	,,	Increase of cardiac dulness, no friction	6 years ago 1st attack; blisters to joints and cardiac region; Mist. Pot. Tart. t. q. s.	C.
9	K. M.	F.	40	3rd	3 days	12	,,	Healthy	12 years ago 1st attack; Pot. Iod. gr. iij, Pot. Bicarb. gr. xv, Tinct. Colchici ♏v, Dec. Conch. t. d. s.	C.
10	A. E. K.	F.	40	1st	5 wks.	93	...	Bruit at apex?	No family history of rheumatism	C.
11	A. A.	F.	31	2nd	...	16	Subacute	Healthy	Pot. Iod. gr. ij, Pot. Bicarb. gr. xx, Tinct. Colch. ♏x t. q. s.; wine 4 oz.	C.
12	A. T.	F.	32	2nd	1 wk.	45	Acute	,,	1st attack 4 years ago; temp. 103°; resp. 32; pulse 100; Sodæ Salicyl. gr. xx 2dis horis, 13 doses taken; temp. 99·5°, p.m. 100·2°, then taken t. q.	C.
13	M. J. W.	F.	47	3rd	7 days	28	Subacute	,,	1st attack 7 years ago; Pot. Iod. gr. ij, Pot. Bicarb. gr. xx, Tinct. Colch. ♏x t. q. s.; Mist. Quin.	C.
14	E. L.	F.	17	2nd	5 ,,	38	Acute	Systolic bruit at apex, probably old pericarditis	Sod. Salicyl. gr. xx 2dis horis; temp. on admission 102·8°, next day 104° p.m., following day 99·6°	C.
15	E. M.	F.	24	2nd	4 ,,	5	Mild	Systolic bruit at apex	Pot. Iod. gr. iij, Liq. Morph. ♏x 5s horis.	R.

16	H. C.	M.	17	1st	1 „	18	Acute	Healthy	Temp. 102·2°; Pot. Iod. gr. iij, Pot. Bicarb. ℈j, Inf. Gent. Co. t. q. s.	C.
17	S. L.	F.	20	2nd	8 „	45	„	Systolic bruit at apex, probably old	Bronchitis; Acid. Salicyl. gr. xx 2nd horis; four days after admission temp. normal; Quin. Sulph. gr. ij in pil. t. q. s.	C.
18	R. F.	M.	16	2nd	5 „	47	„	Slight systolic bruit at apex	In hospital 18 months ago with rheumatic fever; Pil. Hydrarg. c. Rheo gr. x hac nocte, Pot. Nit. gr. x, Mist. Eff. t. q. s., Pil. Hydrarg., Pulv. Ipecac. Co. āā gr. v h. s.; wine 4 oz.; Pot. Iod. Ferri et Amm. Cit. gr. v t. q. s.	C.
19	L. R.	F.	11	1st	4 „	19	„	Systolic mitral murmur	Temp. 101·2°; Mist. Pot. Tart.	—
20	L. W.	F.	24	1st	1 „	10	Subacute	Healthy	Pot. Iod. gr. v t. q. s.	C.
21	E. S.	F.	25	1st	...	1	Acute	Acute myocarditis	Temp. 101·6°; admitted moribund; died very suddenly. P.M.—Acute myocarditis, thrombosis in right auricle, &c.	D.
22	G. B.	M.	23	1st	5 „	31	„	Systolic bruit at apex	Temp. on admission 103·1°; Pot. Nit. gr. x, Mist. Efferv. 6tis horis, Pot. Iod. gr. iij; E. mist.	C.
23	G. B.	M.	19	3rd	5 „	43	„	Systolic mitral	1st attack 3 years ago; temp. 102°, pulse 116, resp. 56; p.m. temp. 101·2°, pulse 112, temp. 42; Acid. Salicyl. gr. xx in caps 2dis horis; temp. next day 98°, pulse 94, resp. 24; pain in joints much easier; Mist. θ et F.	C.
24	E. S.	F.	20	2nd	10 „	24	„	Slight systolic at apex	1st attack 8 years ago; temp. 102·3°; Sod. Salicyl. ℈j 2dis horis; temp. normal in 3 days; Ferri et Quin. Cit. gr. v t. q. s.	C.
25	G. N. N.	M.	26	4th	3 „	22	„	Soft mitral systolic	Temp. 103·2°; Lin. Bell., Liq. Morph. gm. xv stat., Pot. Iod. gr. iij, Pot. Bicarb. ℈j, Tinct. Colch. ♏v t. q. s.	C.
26	C. W.	F.	20	2nd	14 „	25	„	Soft systolic apex murmur	Pot. Iod. gr. iij t. q. s.; temp. 100·4°	C.
27	C. B.	F.	17	1st	5 „	37	„	Systolic apex bruit	Chloral Hyd. gr. xx, Pot. Brom. gr. xxx hæc nocte, Pot. Nit. gr. x, Mist. Eff., Lin. Bell.	C.
28	C. F.	M.	36	2nd	1 mo.	17	„	Healthy	1st attack 4 years ago	C.
29	A. B.	M.	17	2nd	2 days	31	„	„	1st attack 1 year ago; temp. 103·5° a.m.; Acid. Salicyl. gr. xx 2dis horis; next day temp. 99·6°	C.
30	A. M.	F.	12	2nd	14 „	7	Subacute	„	1st attack 13 months ago; temp. 101·4° p.m.; a.m., 98·4°	C.

TABLE IV—*continued.*

No.	Name	Sex	Age.	Number of attacks	Duration before admission.	Days in hospital	Character.	Condition of heart, &c.	Remarks, treatment, &c.	[illegible]
31	C. C.	M.	35	3rd	1 mo.	20	Acute	Healthy	1st attack 12 years ago; Pot. Iod. gr. iij t. q. s.	C.
32	M. A. M	F.	13	1st	1 day	19	,,	,,	Temp. 103·4° p.m.; a.m., 101·4°; Sod. Salicyl. gr. xv, Syr. Aurant. ℥j 2dis horis	C.
33	H. P.	M.	39	2nd	2 ,,	28	,,	,,	Pot. Nit. gr. x, Pot. Iod. gr. iv t. q. s.; 1st attack 3 months ago	C.
34	E. S.	F.	22	1st	8 ,,	37	,,	Pericardial effusion	Temp. 101·4°; Pulv. Doveri gr. x t. q.	C.
35	M. J. S.	F.	16	1st	3 ,,	31	,,	Reduplication of first sound at apex	Temp. 103°; Sod. Salicyl. gr. xx 2dis hr.	C.
36	A. P.	F.	21	3rd	10 ,,	28	,,	Left systolic bruit at apex	Temp. 100·4° p.m.; 100·2° a.m.; Sod. Salicyl. gr. xx 3tiis hr.; following day temp. normal	C.
37	T. H.	M.	24	1st	9 ,,	36	,,	Pericarditis	Temp. 103·2°; a.m. 103·6°; Sod. Salicyl. gr. xx 2dis horis	C.
38	E. S.	M.	21	1st	2 ,,	30	,,	Healthy	Temp. 101·4° p.m.; Pot. Nit. gr. x, Mist. Eff., Liq. Hyd. Perch., Pot. Iod.	C.
39	M. C.	F.	20	1st	11 ,,	11	,,	,,	Temp. 102·6°; a.m., 102·4°; Sod. Salicyl. gr. xx 2dis hr.; next day temp. normal	C.
40	H. P.	F.	25	1st	7 ,,	20	,,	,,	Pulv. Ipecac. Co. gr. viij b. q. s.; sequelæ chronic knee affection; transferred to Surgical Ward	R.
41	H. D.	M.	29	1st	7 ,,	36	,,	Healthy on admission; on 4th day endocardial bruit	Pot. Bicarb. gr. xxx, Pot. Nit. gr. x, Pot. Iod. gr. iv 6tis horis; temp. 99°; p.m. 102·4°	C.
42	J. S.	M.	23	1st	4 ,,	33	,,	Healthy	Temp. 103°; Acid. Salicyl. gr. xx 2dis hr.; temp. normal 5 days after admission	C.
43	A. G.	M.	23	1st	6 ,,	77	,,	Left systolic at apex, pericarditis	Temp. 102° a.m., 102° p.m.; Acid. Salicyl. gr. xx 2dis hr.	C.
44	E. B.	M.	28	1st	7 wks.	57	,,	Healthy	Temp. 100°; Pot. Iod. c Bicarb., Vin. [illegible]; relapse 1 month after admission	C.

45	G. C.	M.	17	4th	4 days	67	,,	Reduplication 1st sound at apex	Temp. 102·2° on admission	C.
46	J. W.	M.	12	...	1 mo.	12	,,	Healthy	Transferred to Surgical Ward; splint; Pig. Iodi	R.
47	M. C.	F.	24	2nd	...	23	,,	,,	Temp. 103°; Sod. Salicyl. gr. xx 3tiis hr.	C.
48	A. J. R.	F.	17	1st	1 wk.	20	,,	,,	Temp. 104°; Sod. Salicyl. gr. xx 2dis hr. Temp. gradually fell to normal	C.
49	C. B.	F.	17	2nd	14 days	15	,,	Systolic bruit at apex and base	1st attack 8 years ago; Sod. Salicyl.; temp. fell from 103° to 99° in 2 days	C.
50	S. M.	F.	49	1st	...	33	,,	Healthy	Temp. 103°; Sod. Salicyl. gr. xx t. q. s.; 10 days after admission temp. 99·8°; p.m. 103·2°	C.
51	R. V.	F.	29	2nd	3 days	14	,,	Pericarditis, systolic mitral bruit	2 days after admission left pleuro-pneumonia, then pneumonia right base. P.M.—Mitral disease, pericarditis, embolism right middle cerebral artery, pneumonia	D.
52	H. H.	F.	20	1s	9 wks.	40	,,	Healthy	Keratitis, iritis; Sod. Salicyl. gr. xx t. q. s.	C.
53	J. W. C.	M.	13	1st	7 days	60	,,	Pericarditis	Temp. 104·6° on admission; Lin. Bell., Pulv. Ipecac. Co. gr. v t. q. s.; temp. normal 4 days after admission; pleuro-pneumonia of left lung	C.
54	S. S.	F.	19	1st	5 ,,	41	,,	,,	Iritis	C.
55	R. B.	F.	23	2nd	5 ,,	2	,,	Healthy	1st attack 2 years ago; transferred to Surgical Ward	R.
56	C. S.	M.	40	5th	...	18	,,	,,	1st attack 24 years ago	C.
57	E. M.	F.	15	1st	5 days	43	,,	Pericarditis, systolic mitral murmur	Temp. 100·4° on admission	C.
58	E. F.	F.	28	1st	2 wks.	43	,,	Slight systolic at apex	Temp. 102·6°; purgatives, Pulv. Doveri; 2 days after admission temp. 103·8°; Sod. Salicyl. gr. xx 2dis hr.; 2 days later temp. 99·9°; Pot. Iod. Bicarb., Vin. Colch., Inf. Gent.	C.
59	L. B.	F.	25	1st	1 mo.	21	Subacute	Systolic mitral	Pot. Iod. et Bicarb., Vin. Colch., Gent.	C.
60	T. B.	F.	20	2nd	5 days	28	Acute	Healthy	Pulv. Doveri gr. v t. q. s., Lin. Bell., Sod. Salicyl. gr. xx 2dis hr.; temp. 102°, normal after 5 doses	C.
61	G. B.	M.	16	1st	1 wk.	12	,,	,,	Temp. 100·6°; a.m., 98·2°; Pot. Nit. gr. x	C.
62	C. R.	F.	14	1st	6 days	30	Subacute	,,	Quin. Sulph. gr. j t. q. s.; temp. 101·2°	C.
63	R. S.	M.	33	2nd	1 mo.	25	Acute	Pericarditis	Sp. Am. Arom. ʒss, Træ. Dig. ♏x, Pot. Iod. gr. iij, Bell. and Glycer. to cardiac region	C.
64	A. S.	F.	10	1st	9 days	22	,,	Healthy	Mist. Pot. Cit., Pot. Nit. gr. x t. q. s. Haust. Morph. o. n.; temp. 101·2°	C.

TABLE IV—*continued.*

No.	Name.	Sex.	Age.	Number of attacks.	Duration before admission.	Days in hospital.	Character.	Condition of heart, &c.	Remarks, treatment, &c.	Result.
65	J. F.	M.	21	3rd	2 wks.	32	Acute	Healthy on admission, pericarditis	Pulv. Dov. gr. x stat., Mist. Pot. Cit.; pneumonia left base	C.
66	E. C.	F.	25	1st	6 days	46	,,	Systolic at base and apex	Highest temp. 106° ; tepid bath, temp. came down to 96·5°, but went up again; normal 3 days later: Pulv. Doveri gr. x h. s.	C.
67	W. B.	M.	27	2nd	5 ,,	12	,,	Bellows bruit at apex	Sod. Salicyl. gr. xx 2dis hr.; 1st attack 12 years ago	C.
68	M. A. U.	F.	22	1st	1 wk.	22	,,	Healthy	Inf. Gent. Co. t. q. s.; Sod. Salicyl.	C.
69	J. P.	M.	15	3rd	1 ,,	18	,,	Mitral systolic bruit	Sod. Salicyl. gr. xx 2dis hr.; temp. 102·8°; normal after 5 doses	C.
70	A. M.	F.	24	1st	14 days	28	,,	Soft systolic mitral	Mist. Eff. Pot. Nit. gr. x t. q. s.; temp. normal in 10 days	C.
71	T. S.	M.	30	4th	3 wks.	30	,,	Healthy	Iritis; Pulv. Doveri gr. x o. n.	C.
72	J. B.	M.	23	1st	8 days	54	,,	Mitral systolic bruit	Sod. Salicyl. gr. xxx t. q. s., Pulv. Ipec. Co., Pot. Iod. gr. v, Vin. Colch. ♏xv, Tra. Opii ♏v t. q. s.	C.
73	E. W.	F.	19	1st	14 ,,	32	,,	Pericarditis	Pulv. Ipecac. Co. gr. v t. q. s., Croton Chloral gr. x, Pot. Brom. gr. xx, Aq. Menth. P. h. s.	C.
74	E. A. A.	F.	30	2nd	1 mo.	46	,,	Systolic mitral	Sod. Salicyl. gr. xx t. q. s.; temp. 104	C.
75	A. P.	M.	20	2nd	4 days	20	,,	Healthy	Temp. 104·1° ; Sod. Salicyl. gr. xx 3tiis hr.; temp normal in 2 days, and pain gone	C.
76	H. G.	M.	34	2nd	10 ,,	67	,,	Pericarditis	1st attack 9 years old; Sod. Salicyl. gr. xx t. q. s.	C.
77	S. A. N.	F.	33	4th	3 ,,	43	,,	Roughening first sound at apex	Temp. 103° ; Sod. Salicyl. gr. xx 2dis hr.; temp. next day 99°	C.
78	E. S.	M.	17	3rd	11 ,,	30	Subacute	Diastolic at base, systolic at apex	Pot. Iod. gr. iij, Mist. Eff. t. q. s., Ext. Bell. and glycerine	C.
79	C. A.	M.	42	2nd	2 mos.	17	Acute	Systolic at base	Temp. 103° ; Sod. Salicyl. gr. xx 3tiis hr.	C.
80	C. G.	F.	17	2nd	8 days	25	,,	Prolongation 1st sound at apex	Pulv. Ipecac. Co. gr. x h. s., Inf. Gent. Co. ℥j t. q. s., Sod. Salicyl. gr. xx 3tiis hr.	C.

81	E. B.	F.	21	2nd	6 „	57	„	Pericarditis, systolic bruit at apex	Pulv. Ipecac. Co. gr. x h. s., Sod. Salicyl.	C.
82	E. H.	F.	25	1st	7 „	59	Subacute	Healthy	Pot. Bicarb. ℈j, Pot. Iod. gr. iij, Sod. Salicyl.	C.
83	E. W.	F.	24	2nd	3 „	46	Acute	Pericarditis	Pot. Nit. gr. x, Mist. Eff.; temp. 103°	C.
84	J. C.	M.	49	1st	4 „	43	„	„ ?	Pot. Brom. gr. xv, Pot. Iod. gr. v, Bicarb.; delirium; temp. 104°; Lithiæ Carb. gr. v t. d.	C.
85	F. W.	M.	13	1st	14 „	17	„	„	Pulv. Ipecac. Co. gr. v b. q., Lin. Bell.	C.
86	F. M.	M.	22	1st	14 „	7	Subacute	Healthy	Temp. on admission 100°; a.m., 98·4°	C.
87	L. P.	F.	20	2nd	14 „	60	Acute	Loud systolic bruit at apex, pericarditis	Embolism right femoral artery, right pleuritic effusion	D.
88	W. T. A.	M.	27	2nd	4 wks.	15	Subacute	Healthy	Mist. Pot. Iod., Tr. Actæ Racem. ɱxx; 1st attack 12 months ago	C.
89	A. B.	F.	15	1st	9 days	11	„	Pericarditis ?	Mist. Stom.; temp. 102° p.m., 98·6° a.m.	C.
90	S. S.	F.	24	1st	8 „	28	„	Healthy	Pot. Nit. gr. x, Mist. Eff.	C.
91	M. M.	F.	20	...	...	14	Acute	...	Transferred from Surgical Ward	C.
92	A. H	M.	13	1st	14 „	15	„	Healthy	Temp. 100°; Pot. Nit. gr. x, Mist. Eff.	C.
93	A. S.	F.	21	1st	7 „	60	„	„	Pulv. Ipecac. Co. gr. v b. q., Lin. Bell., Sod. Salicyl. gr. xxx t. q.	C.
94	J. W.	M.	25	1st	9 „	7	„	Double murmur at apex	Temp. on admission 101·6°; a.m., 99·6°	C.
95	L. G.	M.	45	5th	1 wk.	38	„	Endocarditis	Pot. Iod., Vin. Colch., and Tr. Opii t. q.	C.
96	A. T.	F.	24	3rd	3 days	32	„	Healthy	Temp. 101·2°; Sod. Salicyl. gr. xx t. q. s.	C.
97	A. Y.	M.	32	1st	14 „	60	„	„	Mist. Eff., Pot. Inf., Liq. Morph. Hydroch.	C.
98	C. E. B.	F.	43	...	...	18	Subacute	„	Pot. Iod. Bicarb., Mist. Quin.; conjunctivitis	C.
99	C. R.	F.	15	4th	4 „	28	Acute	„	Sod. Salicyl. gr. xx 4tis hr.; temp. 101°	C.
100	E. M.	M.	27	4th	4 „	19	„	Systolic bruit at apex	1st attack 4 years ago; calomel gr. iij, Pulv. Jalap Co. gr. xx hac mane	C.
101	H. E.	M.	16	3rd	3 „	15	„	„	Mist. Eff. Pot. Nit. gr. x t. q. s., Tinct. Ferri Perchl. ɱxv, Tr. Colch. ɱx t. q.	C.
102	S. A. B.	F.	14	1st	...	21	„	...	Sod. Salicyl. gr. xx 3rd hr.; temp. 103·5°; next day 100·8°, then Mist. Eff. Pot. Nit. gr. x t. q. s. given; following day 98·4°	C.
103	S. M.	F.	18	...	1 mo.	59	„	Pericarditis	Pot. Bicarb. gr. x, Pot. Nit. gr. x; temp. 100°	C.
104	A. B.	F.	25	1st	3 days	18	„	„	Mist. Eff., Lin. Bell.; temp. 101·8°	C.
105	E. P.	F.	17	1st	3 wks.	43	„	Healthy	Mist. Eff., Lin. Bell., Liq. Vesicat.	C.

TABLE IV—*continued.*

No.	Name.	Sex.	Age	Number of attacks.	Duration before admission.	Days in hospital	Character.	Condition of heart, &c.	Remarks, treatment, &c.	Result.
106	E. G.	F.	20	1st	10 days	52	Subacute	Healthy	Pulv. Ipecac. Co. gr. x h. s., Sod. Salicyl. gr. xx 3tiis hr.; temp. 102°, 2 days later 99°	C.
107	J. C.	M.	46	2nd	5 „	17	„	„	Haust. Sennæ Co. ʒiss stat.	C.
108	M. A. M.	F.	13	2nd	1 „	55	Acute	Systolic at apex	Sod. Salicyl. gr. xx 3tiis hr.; pain disappeared very soon	C.
109	M. P.	F.	20	2nd	2 wks.	28	„	Loud mitral bruit	Sod. Salicyl. gr. xx 2dis hr.; delirium	C.
110	E. T.	F.	19	3rd	1 mo.	70	„	Double mitral bruit, pericarditis	Pot. Iod. gr. iij, Bicarb. ʒj, Træ. Colch. ♏v t. q. s.; pneumonia Træ. Aconiti ♏j t. q. s.	C.
111	J. S.	F.	10	1st	4 days	19	„	Loud systolic bruit at apex	Pot. Iod. gr. j, Bicarb. gr. v 6tis hr., Hyd. c. Cretâ gr. ij, Pulv. Antim. gr. j, P. Rhei gr. v h. s.	C.
112	J. K.	F.	23	9th	14 „	46	„	Double bruit at base	Anginiform attacks; Amyl. Nit. as much as ʒiss given with great relief on one occasion; Sod. Sal.	C.
113	S. D.	F.	26	2nd	...	35	„	Pericarditis	Sod. Salicyl. gr. xx 2dis hr.; temp. 100°, after 6 doses 97°; Pot. Iod. gr. iij, Dec. Cinch. t. q. s.	C.
114	A. B.	F.	16	1st	7 wks.	27	„	„ ?	Tinct. Ferri Perch. ♏xx t. q. s.	C.
115	H. W.	M.	31	1st	...	36	„	Healthy	Pot. Iod. and Bicarb. ʒj, Colch. Træ., Inf. Gent. Co.	C.
116	W. B.	M.	9	1st	...	10	Subacute	„	Pot. Nit. gr. v, Mist. Eff. 6tis hr.	C.
117	C. H.	F.	15	2nd	6 wks.	26	Acute	Systolic mitral bruit	1st attack 2 years ago after scarlatina	C.
118	W. M.	M.	22	1st	14 „	21	„	Systolic at apex	Sod. Salicyl. gr. x t. q. s.; temp. 101·4° on admission	C.
119	H. S.	M.	48	1st	...	36	Subacute	Healthy	Pot. Iod. Bicarb., Træ. Colch. t. q. s.	C.
120	F. B.	M.	30	6th	...	50	Acute	Pericarditis	Mist. Eff. Pot. Nit. gr. x; 1st attack 10 years old; relapse	C.
121	J. B.	F.	15	1st	7 wks.	16	„	Healthy	... ...	C.
122	W. W.	M.	30	1st	7 days	8	„	„	Pot. Bicarb. ℈j, Mag. Sulph. ʒj, Træ. Colch. ♏j t. q.	C.
123	H. C.	M.	25	4th	13 „	60	„	Double bruit at apex	Pulv. Ipecac. Co. gr. x h. s., Lin. Bell.	C.
124	H. P.	F.	20	1st	...	35	„	Healthy	Mist. Pot. Cit. Eff.	C.

125	C. S.	M.	29	3rd	...	59	,,	Aortic disease	Pil. Hyd., Pil. Conii Co. āā gr. v o. n., Pot. Acet. ʒj, Decoc. Scoparii et Digitalis. P.M.—Aortic valvular disease	D.
126	E. B.	F.	19	2nd	7 wks.	94	Very severe	Severe pericarditis, with effusion	Hirudines xij to cardiac region	C.
127	J. A.	M.	19	2nd	4 ,,	20	Acute	Healthy	Pot. Nit. gr. x, Mist. Eff. Sod., Salicyl. gr. xx	C.
128	H. L.	M.	20	2nd	4 ,,	20	,,	...	1st attack 4 years ago; Sod. Salicyl.	C.
129	W. J.	M.	15	2nd	7 ,,	16	,,	Cardiac disease	1st attack 5 years ago	C.
130	E. S.	F.	17	...	...	30	,,	Pericarditis	Sodæ Salicyl. gr. xx, 2dis hr.	C.
131	J. S.	M.	11	1st	2 wks.	86	,,	Healthy	Pot. Iod. Bicarb., Colch., &c.	C.
132	H. L.	M.	37	1st	11 days	48	,,	,,	Temp. on admission 102·2°	C.
133	S. M.	F.	24	2nd	10 wks.	15	,,	Loud systolic at apex	1st attack 10 years ago	C.
134	D. C.	M.	30	1st	14 days	13	,,	Healthy	Sodæ Salicyl. gr. xx 4tis hr.	C.
135	M. S.	F.	34	3rd	...	32	,,	Systolic at apex	Pot. Iod. Bicarb. Colch., Pil. Dov. alt. n.	C.
136	H. F.	M.	20	2nd	...	18	,,	Healthy	Sodæ Salicyl. gr. xx 4th hr., Lin. Bell.	C.
137	E. B.	F.	20	1st	4 wks.	48	,,	Pericarditis	Pulv. Dover. gr. x t. q., Lin. Bell.	C.
138	T. A.	M.	26	1st	1 wk.	68	,,	,, ?	Sodæ Salicyl. treatment	C.
139	G. E.	M.	20	3rd	...	10	Subacute	Healthy	Pot. Bicarb. and Iod.	C.
140	J. K.	M.	16	2nd	12 days	44	Acute	Pericarditis	Pulv. Ipecac. Co. gr. x b. d., Lin. Bell.	C.

TABLE V.—*Mitral Valvular Disease (chiefly).*

Initials and occupation.	Sex.	Age.	Days in hospital.	Result.	No. of attacks of rheumatic fever.	First.	Last.	Duration of symptoms.	Character of disease, signs, &c.	Symptoms and complications	Remarks, treatment, post mortem, &c.
C. T., brassfounder	M.	23	63	R.	2	5 years	2 years	2 years	Præ- and systolic apex murmurs	Dyspnœa and anasarca	In hospital 10 weeks ago.
J. B., hawker	M.	45	49	R.	1	13 years	...	4 years	Double bruit at apex	Dyspnœa, palpitation, hæmoptysis, bronchitis	Heart much increased in size.
F. C., married	F.	21	83	R.	1	2 years	...	6 mos.	Præ- and systolic apex murmurs	Ascites, much cough and anasarca	Marked increase of cardiac dulness.
W. D., carpet-worker	M.	18	50	R.	...	...	...	12 mos.	Loud systolic at apex	Dyspnœa, palpitation, no dropsy	Scarlet fever 5 years ago.
E. M. E., married	F.	46	12	R.	1	22 years	...	3 mos.	Loud systolic apex murmur	Cardiac pain, dyspnœa, palpitation	Mist. Scoparii.
T. F., cabman	M.	26	4	R.	2	18 years	8 years	½ hour	Soft systolic apex, giddiness	Sudden seizure with giddiness	Sp. Amm. Ar. ♏xx, Vin. Ipecac. ♏x, Inf. Casc. ad ℥j t. q. s., brandy ℥iv.
J. B., tinplate worker	M.	41	6	D.	...	...	...	3 weeks	Systolic at apex and base	Great dyspnœa, no dropsy, bronchitic râles lungs	Died suddenly after jumping out of bed; Sp. Æth. ♏xx, Sp. Am. Ar. ♏xxx, Sp. Chlorof. ♏xx, Tr. Digit. ♏x, A. M. P., t. q. s., brandy ℥iij. P.M.—Disease of aortic and mitral valves, œdema of lungs.
P. C., nurse	F.	22	28	R.	3	8 years	18 mos.	8 years	Systolic bruit at apex	Palpitation, dyspnœa, cardiac pain, slight œdema of legs	Mist. Stom. ℥j t. q. s.
R. F., upholsterer	M.	47	7	D.	1	26	...	3 mos.	A loud mitral murmur	Shortness of breath on exertion, palpitation, bronchitis	Dry cupping, Vin. Ant., Pot. Tart. ♏v, Oxymel Scillæ ʒj 6tis hr. No post mortem.
F. C., child	M.	8	6	R.	2	18 mos.	8 mos.	...	Double murmur at apex, systolic at base?	Pain in region of heart, dyspnœa, no dropsy	Tinct. Ferri Perchl. ♏x t. q. s.

B. B., decorator	M.	36	66	R.	?	...	...	10 weeks	Systolic at apex	Dyspnœa, ascites, swelling of legs, plumbism, albuminuria	Pot. Bitart. ʒss, Ferri Tart. gr. v, Aq. Tinct. Ferri Perchl. ♏xx, Syr. Strychn. ♏v, Sp. Chlorof. ♏xv, Aq. ℥j.
G. K., school	M.	13	38	R.	...	...	...	4 years	A loud præsystolic murmur	Fainting attacks 3 weeks, dyspnœa, lividity	Scarlet fever 4 years ago.
C. P., s. s.	F.	42	65	D.	?	...	...	...	Double murmur at apex	Great dyspnœa, swelling of legs, ascites, lividity, congestion of lungs	Pot. Bitart ʒj, Træ. Digit. ♏x, a. m. p. ℥j, dry cupping. P.M.—Mitral stenosis.
J. B., labourer	M.	62	24	R.	...	...	...	18 days	Systolic at apex	Suddenly seized with pain in chest after fit of coughing, orthopnœa	Stimulants; Sp. Am. Ar. ʒss., Sp. Æth. ♏xx, Sp. Chlorof. ♏xx t. q. s.
F. M., school	M.	12	16	R.	1	5 mos.	...	5 mos.	Loud rasping systolic mitral	Pain in region of heart, palpitation, no dropsy	—
M. A. M., widow	F.	34	39	R.	1	14 years	...	4 years	Loud mitral bruit, dilated right heart	Dyspnœa, cough, had a "fit," some dropsy	Pil. Dig. Co. gr. j t. q. s., Am. Carb. gr. v, Pot. Cit. gr. xx, Syr. Tolu ʒss. t. q. s.
W. C., tinplate worker	M.	18	28	R.	3	6 years	6 mos.	6 years	Double mitral murmur	Dropsy, ascites, dyspnœa, thrill, albuminuria	Tinct. Ferri Perchl. ♏xv, Tinct. Digit. ♏xv, Inf. Quass. ℥j t. q. s.
W. D., carpet maker	M.	18	2	D.	1	?	...	2 years	Double bruit at apex	Some dropsy, albuminuria	Admitted moribund; stimulants. P.M.—Mitral stenosis, dilated right heart, embolism in kidneys.
J. H. H.	M.	19	81	R.	...	...	...	4 years	Systolic mitral	Palpitation, cardiac pain, angular curvature of spine	Pot. Iod. gr. iv, Syr. F. Iod. ʒss t. q. s. Tinct. Nucis Vom. ♏vj t. q. s.
A. C. C., bootmaker	M.	16	84	D.	2	14 mos.	4 mos.	14 mos.	Soft systolic apex murmur	Dyspnœa on exertion 14 months, orthopnœa	Hyd. c. Cret. gr. ij, Pulv. Ipecac. Co. gr. iij, Ext. Hyos. gr. ½ ft. pil. o. n.; Sp. Chlorof. ♏x, Inf. Digit. ʒss., Mist. Camph. ʒij t. q. s.
E. J., married	F.	42	31	R.	...	...	...	3 mos.	Rasping systolic mitral bruit	Pain in cardiac region, swelling of legs, dyspnœa	Liq. Amm. Acet. ʒiiss, Pot. Nit. gr. x, Træ. Digit. ♏x, A. M. P. t. q. s.
E. W.	F.	25	7	D.	3	16 years	2½	6 mos.	Systolic apex bruit and aortic ?	Dyspnœa, hæmoptysis, vomiting, pregnancy	Died suddenly. P.M.—Mitral and aortic disease.
S. S., laundry	F.	17	27	R.	3	7	6 mos.	6 mos.	Double mitral bruit, having a grating character	Shortness of breath on exertion, palpitation	M. Q. c. F.; heart much enlarged.
S. P., married	F.	29	18	R.	1	3 years	...	5 weeks	Systolic mitral, præsystolic (?)	Palpitation, shortness of breath	—

Table V—(*continued*).

Initials and occupation.	Sex.	Age.	Days in hospital.	Result.	No. of attacks of rheumatic fever.	First.	Last.	Duration of symptoms	Character of disease, signs, &c.	Symptoms and complications.	Remarks, treatment, post mortem, &c.
S. T.	F.	15	21	R.	2	6 years	5 mos.	...	Double mitral murmur	Thrill, dyspnœa	—
C. H.	F.	16	56	D.	1	6 years	...	3 years	Double bruit audible at apex	Ascites, swelling of legs, orthopnœa	Pil. Dig. Co. gr. v t. q.; paracentesis; no post mortem.
M. D.	F.	27	20	R.	3	3 years	...	5 mos.	Systolic apex murmur	Cough, palpitation, no dropsy	Pot. Brom. gr. xxx h. n.
E. J.	F.	42	22	R.	1	4 years	...	1 month	Double at apex	Cough, swelling of legs, dyspnœa	—
R. L., widow	F.	73	161	D.	...	...	...	2 years	Systolic mitral murmur	Shortness of breath, some œdema of legs, delirium, bronchitis	Mist. Scoparii Co. t. q. s. P.M.—Disease of mitral and aortic valves, general atheroma of arteries, aneurism of right popliteal artery.
R. H., platelayer	M.	33	46	D.	2	15	20 mos.	2 mos.	Bruit at apex, præsystolic (?)	Orthopnœa, cough, anasarca, ascites, slight jaundice	Amyl. Nit. inhaled, Dry cupping. Pot. Brom. gr. xxx. Pot. Acet. Inf. Digit. No post mortem.
P. C., mason	M.	38	2	U.	...	...	...	5 mos.	Mitral (?), albuminuria	Palpitation, &c.	Tinct. Dig. m xx. Mist. Scoparii. Went out of hospital on own accord.
W. S. M., nil	M.	16	21	R.	...	...	...	2 mos.	Double murmur at apex	Shortness of breath, palpitation, no dropsy	—
H. W., butcher	M.	29	12	R.	1	3 years	...	1 week	Systolic at apex, præsystolic (?), diastolic at base	Bad cough, palpitation, dyspnœa on exertion	Tinct. Bell. m x. Mist. Pot. Cit. Eff.
E. S., married	F.	30	130	R.	...	...	...	1 month	Rasping systolic apex bruit	Orthopnœa, dropsy, albuminuria, much cardiac pain	Jalap. Pil., Dig. Co., Liq. Opii m xx. Sp. Chlor. m xx stat.
E. B., s. s.	F.	21	18	R.	3	12 mos.	...	6 days	Loud systolic bruit in mitral area and at base (?)	Pain, palpitation, slight cough	Liq. Hyd. Perch. and Pot. Iod.
M. A. T., married	F.	27	28	R.	...	...	...	5 years	Double mitral murmur	Dyspnœa, great ascites, swelling of legs	—

M. A. T., married	F.	59	27 R.	...	...	...	7 mos.	Loud systolic at apex	Cough, dyspnœa, marked dropsy	Amm. Carb. gr. v, Træ. Dig. ♏x, Inf. Senegæ ad ℥j t. q. s.
J. K., waiter	M.	56	11 R.	2	43	38	years	Loud bruit at apex	Sciatica, suffered from heart symptoms for years	
A. F., traveller	M.	52	23 U.	...	...	...	6 mos.	Loud systolic at apex, diastolic at base	Cough, dyspnœa, much expectoration, bronchitis	Amm. Carb. gr. v, Tinct. Dig. ♏x, Inf. Scoparii ℥j t. q. s.
J. E. D., child	F.	10	24 R.	...	...	...	1 month	Loud bellows systolic apex murmur	Dyspnœa on exertion, palpitation, lividity, cough	Had scarlatina; Amm. Carb. gr. iij, Tinct. Dig. ♏x t. d., Amm. Carb. gr. iij, Bell. Glycerin. Senegæ 6tis horis.
C. B., labourer	M.	21	24 R.	...	...	...	18 mos.	Systolic apex murmur	Shortness of breath, palpitation, cough	
C. T., brass finisher	M.	24	47 R.	...	...	...	...	...	...	In hospital in January; is suffering from same symptoms.
T. B., labourer	M.	36	12 R.	1	1 year	...	1 year	Double bruit at apex, also at base	Pain, cough, dyspnœa, dropsy, vomiting	Cataract in both eyes.
A. S., shirt laundry	F.	20	60 R.	2	2½ years	2 mos.	8 days	Loud systolic apex bruit	Pain in left side, dyspnœa, effusion left pleura	Paracentesis thoracis; Emp. Canth., Pot. Iod. Bicarb., &c.
E. F., married	F.	33	55 R.	3	11 years	13 weeks	11 years	Loud systolic mitral bruit	Anasarca, dyspnœa, cough	Amm. Carb. gr. v, Træ. Dig. ♏v, Syr. Scillæ ♏xv, Inf. Seneg. 6tis horis.
J. V., school	F.	12	14 D.	2	2 years	1 year	1 year	Double bruit at apex, pericarditis	Palpitation, dyspnœa, bronchitis	Pot. Cit. gr. x, Træ. Opii ♏iv, Sp. Am. Arom., ♏xv t. q., Bell. and Glycerine. P.M. — Pericarditis, enlarged and dilated heart, mitral regurgitation.
G. M., single	F.	22	39 D.	...	...	...	years	Systolic apex bruit, diastolic at base, marked hypertrophy	Anasarca, ascites, albuminuria	Inf. Digit. ℥ss, Pot. Nit. gr. x, Sp. Æth. Nit. ʒss, Aq. t. q. s. P.M.—Disease of mitral and aortic valves.
O. G. S.	M.	30	18 D.	3	7 years	A few mos. ago	4 mos.	Loud systolic apex bruit	Dyspnœa, cough, anasarca	Tinct. F. Perch. and Digit. t. q. s. P.M.—Mitral disease, red induration of lungs.
E. S., s. s.	F.	17	25 R.	1	2 years	...	8 days	Double bruit at apex	Pain in left side, dyspnœa, cough, pneumonia left lung	Had chorea 5 years ago.
W. B., potman	M.	27	30 R.	6	?	4 mos.	4 mos.	Systolic mitral bruit	Palpitation, shortness of breath on exertion, bronchitis	Amm. Carb. gr. v, Træ. Digit. ♏xx, Sp. Chlorof. ʒss. 6tis horis.

TABLE V—(*continued*).

Initials and occupation	Sex.	Age	Days in hospital.	Result.	No. of attacks of rheumatic fever.	First.	Last	Duration of symptoms	Character of disease, signs, &c.	Symptoms and complications.	Remarks, treatment, post mortem, &c.
W. L., grocer's assistant	M.	21	11	R.	1	4 mos.	...	2 mos.	Double mitral murmur	Cough, haemoptysis	Acidi Sulph. dil. ♏xv, Mag. Sulph. ʒss, t. q. s., Tinct. F. Perchl. ♏xx t. q. s.
M. A. T., married	F.	28	26	D.	...	...	...	5 years	Double mitral murmur	Orthopnœa, dropsy, ascites	P.M.—Mitral and tricuspid stenosis, pulmonary apoplexy.
W. J., school	M.	10	35	R.	2	7 years	5 mos.	2 weeks	Loud mitral systolic bruit	Much swelling of feet, slight jaundice, dyspnœa	Tr. Digit. ♏viij, Tinct. F. Perchl. ♏x, Inf. Quassiæ t. q. s.
J. B., carpenter	M.	42	37	D.	4	?	2 years	1 month	?	Dyspnœa, swelling of legs and abdomen, vomiting	Pot. Acet. gr. xx, Mist. Scoparii Co. ℥j. t.d.s.; Pulv. Jal. Co. ʒss. o.m. P.M.—Mitral and aortic disease.

SPECIAL ANALYSES AND ABSTRACTS.

I.—(*a*) SCARLET FEVER.

There were 31 cases admitted: 18 males, 13 females. 2 of these cases had had a previous attack of the disease; 1 eleven years previously, the other eight years.

Of these 31 cases, 11 were admitted on the 2nd day of the attack, 8 on the 3rd, 3 on the 4th, 1 on the 5th, 4 on 6th, 2 on 8th day.

Three cases were transferred from the surgical wards, 1 had been in hospital 14 days, another 7 days, and a 3rd only 1 day before the symptoms commenced. 1 probationer nurse suffered from scarlatina, she not having had any connection with the infectious wards. Albuminuria was noted in 3 of these cases treated from commencement of disease. It was very slight and transient, in 1 occurring in the 2nd week, 2 in the 3rd week; 1 case had acute rheumatism occurring in the 1st week of disease, and also had delusions, but was discharged cured. In 6 cases, 4 males and 2 females terminated fatally.

Case 1.—R. A—, æt. 5, admitted March 23rd. Had been ill one day, having had two "fits" and a severe sore throat. On admission temp. 102·2° a.m., 103·6° p.m., was very restless, and slight discharge from nose, glands of neck swollen, gradually got worse; and on March 26th temp. 103·2°, extremely restless, very thick offensive discharge from nose and throat. Rash over body, arms and legs still well marked. A few petechial spots on right buttock. Dyspnœa, and was unconscious. Died on the 27th. P.M.—Marked swelling of tonsils and glands of neck. Œdema of glottis and bronchial catarrh.

Case 2.—J. K—, æt. 4, admitted May 26th. Had been ill about one week with a cough and sore throat. Rash of scarlet fever appeared two days before admission. Glands of neck were much swollen. Very offensive discharge from nose. Highest temp. 103·1°. Died on May 29th. No post mortem allowed.

Case 3.—H. T—, æt. 4, female, admitted August 13th. Had been ill one day. Extensive glandular swelling of neck. Rash well marked. Temp. 103°. On admission treated with Amm. Carb. gr. ij. Symptoms of pneumonia set in. Died on Aug. 16th. P.M.—Broncho-pneumonia of right lung.

Case 4.—G. D—, æt. 8½, male, admitted August 25th. Taken suddenly ill morning before admission with vomiting and nausea. Was brought to hospital in an unconscious state. Temp. 105°. On 27th rash appeared; temp. 105°;

very restless. 27th.—Temp. 105·2°, tepid bath; temp. 103·8° after bath; wet pack at 5.30 p.m.: temp. 105·[illegible]° before, after 104·8°. Died at 4 a.m., Aug. 28th. No post mortem.

Case 5.—W. T—, æt. 3, admitted November 10th. Had been ill one day. Temp. on admission 105·4°. Rash well marked. Glands of neck were much swollen. Bath treatment was tried with benefit. Breathing became very laboured. Died on Nov. 21st. No post mortem.

(b) SEQUELÆ OF SCARLET FEVER.

Five cases, 3 males, 2 females. All suffering from albuminuria and dropsy. Three cases were "cured," 1 relieved, 1 died. The fatal case was a boy, æt. 2, admitted Dec. 12th, suffering from anasarca and albuminuria. Died Dec. 28th. No post mortem.

II.—TYPHUS.

One case was admitted during the year.

C. O—, æt. 34, male, residing in Lambeth, was admitted July 17th. Had not been well for 7 days, left off work on the 12th. On admission had a well-marked rash, temp. 103°, no delirium. The temp. was normal the evening of the 4th day after admission. Complication, phlebitis. Discharged cured Aug. 10th.

III.—ENTERIC FEVER.

The cases of enteric fever were far more numerous than in preceding years. There were 66 cases treated during the year, 35 males and 31 females. The number of fatal cases was 9, giving a mortality of 13·6 per cent.

40 cases had an eruption, 29 had diarrhœa, either slight or severe.

Of the 9 fatal cases, 4 had perforation of the small intestine and peritonitis, 1 case had diphtheria and broncho-pneumonia, 1 pneumonia, and 1 hæmorrhage from bowel.

8 cases had the cold bath treatment; 6 of these cases, who derived great relief from the treatment, were discharged cured; 2 very severe cases were fatal. The other treatment was chiefly dietetic.

The number of admissions rapidly increased the latter part of the year, and special wards were opened to treat the disease.

Vide Table III.

IV.—DIPHTHERIA (Membranous Croup).

11 cases, 4 males and 7 females. There were 6 fatal cases, viz.:

Case 1.—A. D—, æt. 4, admitted March 6th in a moribund state. Tracheotomy was speedily performed with great relief. Died at 11 a.m. on March 7th. P.M.—False membrane in pharynx.

Case 2.—W. S—, æt. 4, was a surgical case convalescing from varicella, was seized with sore throat on July th. His respiration rapidly became embarrassed on July 8th. Tracheotomy was performed with marked temporary relief. Died July [illegible]th. P.M.—False membrane in pharynx.

Of the 4 other fatal cases, 2 had broncho-pneumonia, of the third there was no post mortem, the other died two hours after admission. P.M.—False membrane confined to larynx; glands of neck suppurating and enlarged.

V.—ERYSIPELAS.

19 cases, 10 males and 9 females. 1 case of erysipelas of leg, a second attack. 18 cases of facial, 7 had had a previous attack, 2 one, 1 two, 2 four, 1 six, and 1 eleven attacks. No fatal case.

VI.—VARIOLA.

12 cases were admitted during the short time the smallpox wards were open, 7 males and 5 females, with 2 fatal cases.

There were 4 cases of discrete smallpox, all vaccinated; 3 had bad marks, and 1 had two fair marks; 3 cases had a semi-confluent attack, 2 had one very fair vaccination mark, and 1 had three fair marks.

3 cases of confluent: 1 fatal case had one poor vaccination mark, 2 cured; 1 unvaccinated; 1 had two very poor marks, subconjunctival hæmorrhage occurred in this case two days after admission, also had a well-marked scarlatiform petechial eruption over lower part of abdomen, groins, and thighs. Subconjunctival hæmorrhage cleared up in 8 days, and was discharged cured.

2 cases had malignant smallpox: 1 had three poor vaccination marks, died on the 7th day of disease; the other, not stated as to vaccination, died on the 5th day.

VII.—RHEUMATISM (*vide* TABLE IV).

145 cases, 67 and 78 females. 63 males, acute and subacute; 78 females, 2 chronic, 2 gonorrhœal cases. Nunber of attack—1st in 65 cases: 27 males and 38 females. 2nd in 42 cases: 17 males and 25 females. 3rd in 14 cases: 9 males and 5 females. 4th in 8 cases: 5 males and 3 females. More than 4 previous attacks or number not stated, 3 males and 6 females.

Age of patients suffering from 1st attack:

	5—10.	10—15.	15—20.	20—25.	25—30.	Over 30.	Total.
Males .	1	4	3	8	5	6	27
Females .	0	7	9	12	6	4	38
	1	11	12	20	11	10	65

From these figures it appears that the most usual period of 1st attack is between the ages of 20 and 25 years, and rare under the age of 10.

Evidence of old and recent endocarditis is stated to have been present in 44 cases: 11 males and 33 females; in 7 cases the disease was doubtful; 4 cases were fatal—1 with pneumonia, 1 with pleurisy, 1 with aortic disease, 1 of acute myocarditis, viz.—

E. S—, female, æt. 25, admitted February 19th with 1st attack of acute rheumatism. Died very suddenly on February 20th. P.M.—Acute myocarditis, thrombosis in right auricle.

VIII.—ACUTE PNEUMONIA

There were 59 cases, 44 males and 15 females. In 12 cases the affection existed on both sides; in 21 cases the disease involved the right lung only, and in 26 the left lung.

The number of fatal cases was 16, mortality 27 per cent.

The following table shows which lung was affected and the number of patients admitted at various ages.

	Under 10 yrs.	10—20.	20—30.	30—40.	40—50.	Over 50	Total No. of cases	Died.
Right lung—								
Males .	1	4	7	1	3	1	17	5
Females .	1	0	1	1	1	0	4	1
Left lung—								
Males .	1	7	3	4	1	0	16	3
Females .	2	3	3	1	0	1	10	1
Both lungs—								
Males .	0	1	4	1	2	0	8	4
Females .	0	1	1	2	0	0	4	2
	5	16	19	10	7	2	59	16

The right lung was affected in 35 per cent. of the cases; left in 44 per cent.; both in 20 per cent.

IX.—PHTHISIS.

Fifty-one cases, 20 males and 31 females. Relieved, 12 males and 14 females. Unrelieved, 2 females. Died, 8 males and 15 females.

Ages.—The ages were as follows:

	Under 10.	10—20.	20—30.	30—40.	40—50.	50—60.	Total.
Males .	0	2	5	4	0	3	12
Females .	1	6	3	1	2	1	16
Fatal cases—							
Males .	0	0	2	1	3	2	8
Females .	0	3	4	4	3	1	15
	1	11	14	10	8	7	51

Hæmoptysis was noted to have occurred either before admission or during the stay in hospital in 23 cases.

Complications in the fatal cases.—Ulcers in large and small intestine in 2 cases, ulcers in larynx and intestine in 1 case, granular contracted kidneys 1, lardaceous degeneration of spleen and kidneys 1, pneumo-thorax 1, syphilitic narrowing of trachea 1, acute lobar pneumonia 3.

X.—EMPYEMA.

Nine cases, 5 males and 4 females, 5 cases of affection of right side and 4 of left. There were 2 fatal cases. Five cases were treated by paracentesis thoracis, and one of them, a boy aged three years, died, but no post mortem was made.

XI.—CIRCULATORY SYSTEM.

(A) MITRAL VALVULAR DISEASE (ALONE OR FORMING THE CHIEF LESION).

There were 60 cases suffering from heart disease, in which the mitral was the valve chiefly affected, 33 males and 27 females; 18 terminated fatally. Thirty-seven of these cases had suffered from acute rheumatism, 1 case to the number of six attacks; 1 had had four, 8 had three, 12 had two, and 15 only one attack.

Vide Table V, in which the chief cases are noted.

(B) AORTIC VALVULAR DISEASE (ALONE OR FORMING THE CHIEF LESION).

There were 20 cases, 14 males and 6 females, of which 8 cases terminated fatally Ten cases had previously suffered from acute rheumatism. In 7 cases there was no history of rheumatism. There was no mention of rheumatism either being free or absent in 3 cases.

Of the 8 fatal cases, 5 had had acute rheumatism, and 3 had never suffered from the disease.

(C) ANEURISM (INTRATHORACIC).

Eleven cases, 9 males and 2 females. Six cases terminated fatally. Nine cases were aneurism of the thoracic aorta, and 2 of the innominate artery. The fatal cases were as follows:

CASE 1.—Male, æt. 46, bricklayer. Symptoms 8 months. In hospital 7 days. Dulness, and pulsation very feeble to right of sternum, P. M.—Two aneurismal sacs, one projecting forwards, close to second rib on right side of sternum, the other projecting backwards, pressing on trachea and right bronchus. Two syphilitic gummata in liver.

CASE 2.—Male, æt. 34, soldier. Symptoms one year. Large pulsating tumour to right of sternum. P.M.—Large aneurismal sac of first and second parts of arch of aorta about the size of a fœtal head. Small syphilitic gummata in liver.

CASE 3.—Male, æt. 37, a farmer. Symptoms 15 years, after an attack of acute rheumatism. Loud double bruit over region of base of heart. P. M.—Aneurism of arch of aorta (fusiform). Incompetence of aortic valves.

CASE 4.—Male, æt. 38, a soldier. Symptoms 6 months. Orthopnœa. Severe pain in region of heart. Face bluish, with purple lips. In hospital 18 days.

P. M.—Aneurism of arch of aorta (first part) opening into pulmonary artery. Mitral incompetence. Large syphilitic gummata in liver.

CASE 5.—Female, æt. 62, married. In hospital 14 days. Attacks of orthopnœa. Croupy cough. Systolic basic murmur. P. M.—Innominate aneurism, also another sac at junction of transverse and descending aorta. Atheroma of aorta.

CASE 6.—Male, æt. 30. Symptoms 5 weeks' duration. Attacks of orthopnœa. No hæmoptysis. Systolic basic murmur. In hospital 2 days. P. M.—Innominate aneurism. Ulceration of trachea, but no complete perforation.

SURGICAL REPORT.

1876.

By CHARLES HENRY NEWBY,

SURGICAL REGISTRAR.

The present Report does not include the cases admitted for "Diseases of the Eye," as the Ophthalmic Surgeon is responsible for an account of this department.

The number of cases treated in 1876 exceeds that in 1875 by 158.

All fractures of the leg which are not compound and are uncomplicated are treated by the Bavarian plaster of Paris splint, which, when once applied, is rarely ever removed until complete union of the fracture has occurred.

In cases of burn and scald carron oil as a first dressing is now nearly superseded by a paste made of acetic acid and whiting, put on whilst in a state of effervescence, and which is found, especially in the Children's Ward, to give instant ease.

For diseases of the hip, and in excisions of that joint, Thomas's splint is invaluable, as with it the patient can be lifted about, and any dressing can be applied without causing any disturbance of the parts; also good drainage is allowed of. Esmarch's band is used in all operations on the extremities where it can be put on, but in excisions of joints there is often considerable after-hæmorrhage.

The attempt to lower the temperature in fever by the subcutaneous injection of carbolic acid has as yet failed, for we have noticed, especially in pyæmia, that it causes no change in the characteristic rise and fall of the temperature of the body, and that the only result is to enfeeble the pulse.

General Statement.

			Total.		
Number of surgical beds in use in hospital in 1876	Males	112	=220		
	Females	108			
Number of patients in hospital January 1st, 1876	Males	96	= 181	=Total . .	1942
	Females	85			
Number of patients admitted during 1876	Males	1070	=1752		
	Females	682			
Number of patients transferred from medical wards	Males	5	= 9		
	Females	4			
Number of patients left in hospital, December 31st, 1876.	Males	110		,, . .	197
	Females	87			
Number treated during the year 1876	Males	1061		,, . .	1745
	Females	684			

	Total.		Males.		Females.
Number cured	997	...	647	...	350
,, relieved	443	..	264	...	179
,, unrelieved	23	...	12	...	11
,, on other grounds	147	.	59	...	88
,, died	135	...	79	...	56
	1745	...	1061	...	684

Average number of days of residence of each patient 35·5.

Average of deaths per cent. 7·74.

TABLE I.—*Abstract, showing Diseases, Injuries, &c., in Classes, according to authorised Nomenclature.*

	Total.		Ages.										Result.					Average stay in hospital in days.
	M.	F.	5	10	15	20	30	40	50	60	70	+	C.	R.	U.	S.	D.	
GENERAL DISEASES.																		
Rheumatism	1	...	...	...	...	...	...	...	1	...	...	...	...	1	...	...	...	22
Gout	1	...	...	...	...	...	...	...	1	...	...	...	...	1	...	...	...	9
Rachitis	1	1	1	1	...	...	...	...	...	...	...	...	...	1	...	1	..	25
Struma	1	3	1	...	1	1	...	...	1	...	...	...	...	4	...	...	...	33
Erysipelas, admitted	15	10	1	1	...	2	6	6	2	6	1	...	24	...	...	...	1	36
,, arising	13	8	...	1	2	...	4	6	1	2	5	...	15	1	...	...	5	...
Pyæmia	8	4	...	...	...	2	1	4	2	2	1	...	...	...	...	...	12	...
Farcy	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	37
Syphilis—																		
Primary indurated sores	...	11	...	...	1	6	2	2	...	...	...	...	7	1	...	3	...	49
Secondary, Condylomata	...	33	...	...	2	22	9	...	...	...	...	...	18	4	...	11	...	52
b. Eruptions	2	10	...	...	1	8	3	...	...	...	...	...	6	1	...	5	...	71
c. Ulcers	1	3	...	...	...	...	4	...	...	...	...	...	4	...	...	...	...	41
d. Ulceration about genitals	...	7	...	...	...	1	6	...	...	...	...	...	6	...	...	1	...	45
e. Rectum	...	2	...	...	...	1	1	...	...	...	...	...	1	1	...	...	...	332
f. Anus	...	2	...	...	...	1	1	...	...	...	...	...	2	...	...	...	...	49
g. Gummata	2	2	...	...	...	...	1	1	2	...	...	...	1	1	...	1	1	25
h. Form not noted	...	5	...	...	...	...	5	...	...	...	...	...	4	...	...	1	...	50
NERVOUS SYSTEM.																		
Neuralgia	1	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	34
Local paralysis	2	1	...	1	1	...	1	...	...	...	...	...	...	2	1	...	...	19
Muscular spasm	3	1	...	...	2	1	1	...	...	...	...	...	1	1	...	2	...	10
ORGANS OF SENSE.																		
Eye—																		
Conjunctiva	1	...	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	38
Cornea	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	2
Glaucoma	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...	1
Nose—																		
Polypus	1	3	...	...	...	...	4	...	...	...	...	...	2	2	...	...	...	39
Lipoma	1	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	...	24
Ozæna	...	1	...	...	...	...	1	...	...	...	...	...	...	1	...	...	..	82
Ear—																		
Deafness	1	1	...	1	...	...	...	1	...	...	...	...	...	1	...	1	...	16
Polypus	...	1	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	26
ORGANS OF CIRCULATION.																		
Aneurism	4	...	...	...	...	...	...	4	...	...	...	...	3	1	...	...	...	40
Hæmorrhage	7	5	...	...	...	2	2	...	4	3	1	...	12	...	...	...	...	15
Phlebitis	1	1	...	...	...	1	...	1	...	...	...	...	2	...	...	...	...	9
Varix	1	1	...	...	...	..	...	2	...	...	...	...	1	1	...	...	...	43
Plugging of vein	1	1	...	...	...	1	1	...	...	...	...	...	1	1	...	...	...	20

TABLE I.—*Abstract, showing Diseases, Injuries, &c., in Classes, according to authorised Nomenclature*—continued.

	Sex		Age										Result					Average stay in hospital in days.
	M.	F.	5	10	15	20	30	40	50	60	70	+	C.	R.	U.	S.	D.	
RESPIRATORY SYSTEM.																		
Diphtheria		1	1														1	1
Empyema	1						1									1		4
DIGESTIVE SYSTEM.																		
Inflammation of tonsils		1				1								1				5
Stricture of oesophagus	2	1								3				3				22
Intestinal obstruction	3						1			2			2				1	5
Intussusception	1		1														1	1
Hernia—																		
Strangulated, irreducible		2			1		1							2				8
.. femoral		10						1		4	3	2	3				7	11
.. inguinal	26		1			1	5	5	2	3	6		18	1		1	6	12
.. umbilical		1							1				1					48
.. fæcal abscess		1									1						1	9
Stricture of rectum	1	5		1			4		1					4		2		34
Prolapsus recti	1	2	2					1					1	1		1		16
Imperforate rectum	1	1	2										1		1			10
Fistula in ano	11	4	1		1		4	3	6	3			15	2	1			27
Hæmorrhoids	10	1					1	4	3	3			6	2		3		12
Fissure of anus		6				2	2	2					4	2				26
Prolapsus ani	1	1						1	1				1	1				34
Imperforate anus	2		2										2					12
GENITO-URINARY SYSTEM.																		
Calculus	10		3	1		2	1			2	1		8				2	57
Gonorrhœa	1	37			1	26	10	1					30	1		7		39
Vaginal discharge		16				10	6						9	1		6		15
Sores on vulva		19				6	12	1					14	2		3		55
Hypertrophy of labium		1					1							1				26
Disease of vulva		1					1									1		35
Cyst of labium		1					1						1					26
Vaginitis		1				1							1					55
Warts on vulva		16				12	4						10			6		35
Sores on penis	11					3	5	2		1			10	1				29
Warts on penis	2						2						1			1		12
Gangrene of penis	1							1						1				42
Chronic epididymitis	2						1		1				2					6
Acute epididymitis	5					3	2						4	1				8
Disease of testis	6		1		1		1	1		2			1	4		1		32
Orchitis	2						1	1					2					24
Varicocele	3					1	1		1				2			1		14
Hæmatocele	1								1				1					30
Hydrocele	7						1	1	2	2		1	6	1				12
Encysted hydrocele of cord	2							1				1	1	1				25
Phymosis	2		1	1									2					32
Pyelitis	1						1										1	322

TABLE I.—*Abstract, showing Diseases, Injuries, &c., in Classes, according to authorised Nomenclature*—continued.

	Total.		Ages.										Result.					Average stay in hospital in days.
	M.	F.	5	10	15	20	30	40	50	60	70	+	C.	R.	U.	S.	D.	
GENITO-URINARY SYSTEM—*continued.*																		
Tubercular bladder	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	38
Absence of bladder	2	...	...	...	2	...	...	...	...	...	...	...	...	2	...	...	...	35
Cystitis	2	3	...	...	...	...	1	2	1	1	...	...	...	5	...	...	...	35
Irritable bladder	2	...	1	1	...	...	...	...	...	...	...	...	...	2	...	...	...	26
Imperforate urethra	1	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1
Retention	10	...	...	...	1	...	2	1	1	3	2	...	3	5	...	...	2	24
Stricture	21	...	...	...	...	...	10	8	3	...	...	...	10	7	...	2	2	35
Urinary fistula	9	...	...	...	...	...	2	1	3	1	2	...	1	5	...	2	1	41
Perineal abscess	5	...	...	...	...	...	2	1	...	1	1	...	3	2	...	...	...	51
Urethral abscess	1	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	61
Recto-urethral fistula	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	14
Recto-vaginal fistula	...	1	...	...	...	...	...	...	...	1	...	...	...	...	1	...	...	6
Recto-vesico-vaginal fistula	...	1	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	132
GLANDULAR SYSTEM.																		
Lymphadenoma	2	...	...	...	1	...	...	...	...	1	...	...	...	1	...	...	1	42
Inflamed gland	7	...	...	...	2	1	1	1	1	1	...	...	7	...	...	...	...	30
Lymphangitis	5	1	...	...	...	...	1	2	...	2	1	...	5	...	...	...	1	33
Mammary abscess	...	8	...	...	...	1	5	2	...	...	...	...	4	3	...	1	...	42
Chronic inflammation of breast	...	1	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	14
Parotitis	1	...	...	...	...	...	...	...	1	...	...	...	1	...	...	...	...	7
Bronchocele	...	2	...	...	...	...	...	2	...	...	...	...	...	2	...	...	...	17
ORGANS OF LOCOMOTION. OSSEOUS SYSTEM.																		
Periostitis	4	5	...	2	2	2	1	1	1	...	...	...	4	3	...	...	2	67
Ostitis	1	1	...	...	...	...	...	1	1	...	...	...	...	2	...	...	...	58
Necrosis and caries—																		
Superior maxilla	...	3	...	1	...	1	1	...	...	...	...	...	3	...	...	...	...	30
Inferior maxilla	5	...	...	1	1	...	1	1	...	1	...	...	4	1	...	...	...	23
Sternum and rib	1	1	...	...	...	...	2	...	...	...	...	...	...	1	...	1	...	39
Humerus	...	1	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	74
Radius and ulna	2	1	1	...	2	...	...	...	...	...	...	...	1	2	...	...	...	26
Bones of hand	3	1	...	...	...	1	1	...	...	...	2	...	3	1	...	...	...	23
Ilium	2	...	...	...	1	...	...	...	1	...	...	...	...	2	...	...	...	54
Femur	6	4	2	...	1	2	1	2	2	...	...	...	3	5	...	...	2	83
Tibia and fibula	17	4	1	6	6	3	2	2	1	...	...	...	11	9	...	...	1	57
Bones of foot	6	2	2	...	...	...	3	3	...	...	...	...	3	4	...	1	...	76
Tumour of bone	4	2	...	1	1	2	1	1	...	...	...	...	4	2	...	...	...	37
Osteo-porosis	...	1	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	27
Joints—																		
Acute synovitis	26	13	...	2	3	8	9	7	5	3	1	1	33	5	...	1	...	22
Chronic synovitis	2	10	...	...	1	...	7	2	2	...	...	...	3	9	...	...	...	46
Abscess	1	1	1	...	...	...	...	...	...	...	1	...	1	...	...	...	1	144

TABLE I.—*Abstract, showing Diseases, Injuries, &c., in Classes, according to authorised Nomenclature*—continued.

	Total		Ages.										Result.					Average stay in hospital in days.
	M.	F.	5	10	15	20	30	40	50	60	70	+	C.	R.	U.	S.	D.	
ORGANS OF LOCOMOTION—*continued.*																		
Rheumatoid arthritis	...	1	.	...	...	...	...	...	1	...	...	...	...	1	...	...	...	7
Anchylosis	4	4	...	2	2	3	1	...	...	...	...	...	4	4	...	...	...	74
Loose cartilage, &c.	2	2	1	.	1	...	...	1	...	1	...	...	2	2	...	...	.	32
Diseases of various structures of joints, including synovial membrane, bone, cartilage, &c., viz.—																		
Shoulder	1	1	...	...	...	...	1	1	...	...	...	...	2	...	...	...	...	124
Elbow	4	2	3	...	...	1	2	...	...	...	...	...	1	4	1	...	...	94
Wrist	2	...	1	...	...	...	1	..	..	...	...	..	1	1	...	...	..	93
Sacro-iliac	...	1	..	...	...	...	1	...	...	...	...	...	...	1	...	...	..	82
Hip	32	12	10	16	12	2	2	1	1	...	..	...	5	31	2	2	4	130
Knee	35	26	15	19	8	7	7	5	...	...	...	...	20	37	1	...	3	94
Ankle	4	3	..	...	..	3	1	...	2	...	1	...	...	6	..	1	...	116
Tarsus	5	2	1	1	...	..	4	...	...	1	...	...	3	1	3	...	.	57
Hysterical disease of joints	...	4	...	...	1	2	1	..	..	...	...	...	3	1	...	...	...	11
Disease of spine—																		
Intervertebral substance	1	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	22
Caries with curvature	4	5	...	6	...	1	...	...	2	...	...	...	...	7	...	1	1	41
Caries without curvature	2	1	1	1	...	...	1	..	...	...	...	...	...	3	...	...	..	135
Appendages to organs of locomotion—																		
Enlarged bursæ	1	3	...	1	.	...	...	2	1	..	...	...	2	1	...	1	...	24
Inflamed bursæ	6	12	..	1	2	4	3	3	3	2	...	...	15	3	...	...		35
Ganglion	...	1	...	..	..	...	...	1	...	...	...	...	1	...	...	...	...	18
CELLULAR TISSUE.																		
Inflammation of	14	2	1	...	2	3	3	3	1	3	...	...	14	1	...	...	1	25
Abscess	44	24	8	10	12	5	14	9	4	4	2	...	43	19	2	2	2	36
Gangrene	3	...	...	...	...	...	...	...	...	2	1	...	...	...	...	...	3	25
Sinus	3	1	..	1	2	...	...	...	1	...	...	...	1	2	1	...	...	101
CUTANEOUS SYSTEM.																		
Eruptions	6	5	...	1	1	...	4	..	2	1	...	2	7	3	...	1	...	17
Ulcers	11	14	2	...	1	...	5	8	3	4	1	1	13	11	...	1	...	45
Onychia	...	1	...	...	...	...	...	1	...	...	...	...	1	...	..	..	...	16
Carbuncle and boil	...	2	...	...	...	...	...	1	...	...	1	.	2	..	...	...	...	13
DEFORMITY AND MALFORMATION.																		
Wry-neck	3	...	1	2	...	...	...	...	...	...	...	...	1	2	...	...	...	20
Talipes varus	2	2	1	...	2	...	...	...	1	...	...	...	1	2	1	...	...	95
„ valgus	2	3	...	...	3	1	1	...	...	...	...	...	3	2	...	...	...	57
„ equinus	1	1	1	1	...	...	...	...	...	.	...	...	1	1	...	...	...	29
Genu valgum	3	...	1	1	...	1	...	...	...	...	...	...	...	3	...	...	...	23

TABLE I.—*Abstract, showing Diseases, Injuries, &c., in Classes, according to authorised Nomenclature*—continued.

	Total.		Ages.										Result.					Average stay in hospital in days.
	M.	F.	5	10	15	20	30	40	50	60	70	+	C.	R.	U.	S.	D.	
DEFORMITY AND MALFORMATION—*continued.*																		
Spina bifida	...	1	1	...	...	...	...	...	...	...	...	...	...	1	...	...	...	85
Extroversio-vesicæ	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1	152
Cleft palate	4	3	1	3	2	...	1	...	...	...	...	...	2	3	...	2	...	114
Harelip	1	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	9
Harelip and cleft-palate	3	...	3	...	...	...	...	...	...	...	...	...	...	1	...	1	1	44
Contracted knee	6	3	...	2	3	2	...	1	...	1	...	...	5	3	...	1	...	91
Deformity and malformation of portions of lower extremity	3	3	3	...	...	1	1	1	...	...	...	...	4	1	...	1	...	16
Contracted tendon	1	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	6
Contraction after burn	2	2	2	...	1	...	1	...	...	...	...	...	2	2	...	...	...	60
TUMOURS.																		
Innocent—																		
Fibroma	2	3	...	...	...	1	1	...	2	...	...	1	4	...	...	...	1	27
Enchondroma	1	...	...	...	...	...	...	...	...	1	...	...	1	...	...	...	...	46
Lipoma	3	7	...	...	...	2	2	4	1	...	1	...	8	1	...	...	1	14
Adenoma	1	5	...	...	2	...	1	1	2	...	...	...	5	...	...	1	...	32
Papilloma	1	1	...	...	...	...	...	...	...	2	...	...	1	...	...	1	...	14
Angioma	3	1	2	1	...	1	...	...	...	...	...	...	3	1	...	...	...	46
Cystic—																		
Ovarian	...	18	...	...	...	...	2	3	4	6	3	...	2	9	...	2	5	29
Other cystic tumours	2	4	...	...	3	1	1	1	...	...	...	...	5	...	...	1	...	47
Fibro-cystic	...	2	...	...	...	...	2	...	...	...	...	...	1	...	...	1	...	8
Keloid	1	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	40
Lupus	...	1	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	58
Epulis simplex	1	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	5
Sarcomata—																		
Fusiform-celled	1	1	...	...	...	...	1	...	...	...	1	...	1	...	...	...	1	166
Round-celled	1	2	...	...	...	2	1	...	...	...	...	...	1	...	1	...	1	95
Melanotic	2	...	...	...	...	...	2	...	...	...	...	...	...	1	1	...	...	70
Cystic	...	1	...	...	...	...	...	...	...	...	1	...	1	...	...	...	...	280
Myxomata	...	2	...	...	...	...	2	...	...	...	...	...	1	...	...	...	1	63
Carcinomata—																		
Scirrhus—																		
Breast	1	18	...	...	...	...	...	3	9	6	...	1	13	...	1	3	2	53
Neck	1	1	...	...	...	...	...	...	1	...	1	...	...	...	...	1	1	24
Parotid	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1	...	9
Thigh	2	...	...	...	...	...	...	...	...	2	...	...	1	...	...	1	...	64
Œsophagus	2	...	...	...	...	...	...	...	...	2	...	...	...	1	...	1	...	30
Rectum	1	2	...	...	...	...	1	...	...	1	1	...	...	...	1	1	1	23
Vagina	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	1	...	6
Medullary—																		
Peritoneum	...	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	6
Rectum	2	...	...	...	...	...	...	2	...	...	...	...	...	1	...	...	1	57

Table I.—*Abstract, showing Diseases, Injuries, &c., in Classes, according to authorised Nomenclature*—continued.

	Total.		Ages.										Result.					Average stay in hospital in days.
	M.	F.	5	10	15	20	30	40	50	60	70	+	C.	R.	U.	S.	D.	
Tumours—*continued.*																		
Mouth	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1	...	16
Epithelioma—																		
Lip	5	...	...	...	...	...	...	...	1	2	...	2	3	...	...	2		12
Tongue	6	1	...	...	...	...	...	...	...	4	3	...	...	...	...	5	2	15
Palate	2	...	...	...	...	...	...	...	1	1	...	...	...	...	...	1	1	25
Œsophagus	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	51
Inner canthus	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...	1		15
Penis	1	...	...	...	...	...	...	...	1	...	...	...	1	...	...	...	...	21
Lower limb	1	1	...	...	...	...	...	...	...	1	1	...	...	...	...	1	1	172
Recurrent epithelioma	2	...	...	...	...	...	...	...	1	1	...	...	...	...	...	2	...	9
Tumours of doubtful nature	...	4	...	...	...	...	1	...	...	1	1	1	...	3	...	...	1	87
General Injuries.																		
Burns	11	17	10	5	2	1	2	2	...	1	2	3	6	5	...	...	17	49
Scalds	25	5	21	2	2	1	3	...	...	1	...	...	15	7	...	...	8	12
Burn and scald	1	...	...	...	...	...	...	...	...	...	1	...	...	1	...	...	...	82
General contusion	15	3	1	3	1	2	4	5	1	...	...	1	18	...	...	...	...	19
Multiple injuries	13	6	2	1	...	1	4	1	...	7	2	1	9	...	...	...	10	25
Local Injury to—																		
Head—																		
Contusion	4	2	1	1	...	2	...	1	...	1	...	...	6	...	...	...	...	3
Scalp wound, bone exposed	5	1	1	...	1	1	1	1	...	...	1	...	4	2	...	...	...	15
„ „ „ not exposed	9	10	...	1	...	2	3	7	1	2	2	1	17	2	...	...	...	11
Concussion	42	3	3	5	9	5	9	8	5	...	1	...	40	3	1	1		15
Fracture of vault—																		
a. Without depression	5	1	1	1	...	1	...	2	1	...	...	...	5	...	...	...	1	37
b. With depression	5	...	...	2	...	...	...	...	2	1	...	...	3	1	...	...	1	20
Fracture of base	3	...	...	...	1	...	2	...	...	...	...	...	...	...	...	...	3	6
Face—																		
Wounds of	10	2	1	2	...	2	4	1	...	...	1	1	10	2	...	...	...	13
Fracture of facial bones	3	2	...	...	1	...	1	1	1	1	...	...	1	3	...	1	...	14
Dislocation of jaw	...	1	...	...	...	...	...	...	...	1	...	...	1	...	...	...	...	9
Eye—																		
Injury of	...	2	...	...	...	...	2	...	...	...	...	...	...	2	...	...	...	25
Ear—																		
Foreign body in	1	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	2
Neck—																		
Wound	5	2	1	...	...	...	1	3	...	1	1	...	5	1	...	...	1	16
Wound of palate	...	1	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	3
To trachea	...	1	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	14
Sprain of muscles	...	1	...	...	...	...	...	...	1	...	...	...	1	...	...	...	...	44
Chest—																		
Contusion	2	...	...	...	1	...	...	...	1	...	...	...	2	...	...	...	...	7

TABLE I.—*Abstract, showing Diseases, Injuries, &c., in Classes, according to authorised Nomenclature*—continued.

	Total.		Ages.										Result.					Average stay in hospital in days.
	M.	F.	5	10	15	20	30	40	50	60	70	+	C.	R.	U.	S.	D.	
LOCAL INJURY TO—*continued.*																		
Chest—																		
Fracture of ribs—																		
a. Simple . . .	4	3	...	...	...	...	...	3	1	2	1	...	5	1	...	1	...	9
b. Complicated . .	9	2	...	1	...	...	5	1	2	...	1	1	8	1	...	...	2	20
Fracture of costal cartilage	1	...	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	2
Back—																		
Contusion	2	2	...	...	...	1	1	2	...	...	...	...	4	...	...	...	...	9
Sprain	6	...	...	...	...	...	2	...	3	1	...	...	5	1	...	...	...	7
Concussion . . .	2	1	...	...	1	...	1	1	...	...	...	...	2	1	...	...	...	12
Fractured spine . .	4	2	...	...	...	...	2	3	1	...	...	...	1	...	...	1	4	21
Injury to cord without apparent fracture . .	2	...	...	...	...	...	...	1	...	1	...	...	1	1	...	...	...	31
Fracture of coccyx . .	...	2	...	...	...	...	1	1	...	...	...	...	1	1	...	...	...	15
Contusion of coccyx . .	...	1	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	4
Abdomen—																		
Contusion	7	1	...	...	2	1	2	3	...	...	...	...	7	...	...	...	1	11
Wound	1	...	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	23
Visceral injury . . .	2	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	2	1
Pelvis—																		
Contusion	1	...	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	26
Wound of genitals . .	1	2	...	...	...	...	1	1	...	1	...	...	3	...	...	...	...	19
Fracture—																		
a. Simple . . .	2	...	...	...	1	...	...	...	...	1	...	...	2	...	...	...	...	71
b. Complicated . .	1	1	...	...	...	...	...	...	...	...	1	1	...	...	...	...	2	2
Ruptured perineum . .	...	4	...	...	...	...	3	1	...	...	...	...	1	...	...	3	...	18
UPPER EXTREMITY.																		
Sprain	...	1	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	16
Wounds	6	4	...	1	2	1	5	1	...	...	...	...	8	2	...	...	...	36
Multiple injury . . .	2	1	...	...	...	...	...	2	...	...	1	...	2	1	...	...	...	55
Fracture—																		
Clavicle	3	1	...	...	...	...	...	...	2	...	1	1	1	3	...	...	...	14
Humerus—																		
a. Simple . . .	4	...	...	...	...	2	...	..	2	...	...	...	...	4	...	...	...	14
b. Compound . .	...	1	...	...	...	...	...	...	1	...	...	...	1	...	...	...	...	75
c. Complicated . .	4	1	...	1	1	...	...	1	2	...	...	...	3	2	...	...	...	56
Fracture of forearm, compound . .	2	1	1	...	1	...	...	1	...	...	...	...	2	1	...	...	...	62
„ carpus, &c. .	8	...	...	...	3	3	2	...	...	...	...	...	7	...	...	1	...	21
Old injury to elbow . .	1	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	36
Dislocation—																		
Clavicle	1	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	21
Humerus	2	1	...	...	...	...	...	2	...	...	1	...	2	1	...	...	...	26
Wrist	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	98
Metacarpus . . .	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	21
Ununited fracture, humerus .	1	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...	...	139

TABLE I.—*Abstract, showing Diseases, Injuries, &c., in Classes, according to authorised Nomenclature*—continued.

	Total		Ages										Result					Average stay in hospital in days.
	M.	F.	5	10	15	20	30	40	50	60	70	+	C.	R.	U.	S.	D.	
LOWER EXTREMITY.																		
Contusion	12	2	1	3	3	2	1	2	2	...	...	..	13	1	...	...	...	19
Sprain	11	...	...	2	..	..	2	4	3	..	..	..	10	1	..	...		9
Wound	12	5	1	1	3	2	2	5	1	1	1	...	15	2	...	...	...	35
„ of joint	2	...	1	..	1	...	..	...	...	...	..	...	1	..	...	1	.	73
Contusion of hip	7	2	..	1	..	..	1	2	...	3	2	..	5	3	...	1	.	17
Multiple fracture	6	...	...	.	...	...	1	3	1	1	...	..	6	...	...	...	...	116
Green-stick fracture	...	1	1	...	...	...	..	..	..	...	...	...	1	...	...	...	...	30
Fracture of femur—																		
a. Simple	29	12	11	5	3	1	1	3	4	7	3	3	35	5	..	1	..	50
b. Compound	2	1	1	1	1	...	...	...	...	...	.	...	1	1	...	...	1	31
c. Into joint	3	.	...	...	...	..	1	..	1	...	1	...	3	.	...	...	...	53
Fracture of patella	9	6	...	...	1	..	3	7	1	2	1	..	12	3	...	...	...	33
Ruptured ligamentum patella	1		...	...	...	...	1	...	..	...	..	...	1	...	..	...	...	24
Fracture of tibia and fibula—																		
a. Simple	27	7	3	3	1	1	9	8	6	2	1	..	27	7	.	...	...	29
b. Comminuted		1	...	...	...	...	...	..	...	1	...	...	1	...	...	..	...	38
c. Compound	14	...	1	...	1	.	2	3	1	3	2	1	9	1	...	...	4	79
d. Complicated	..	1	...	..	..	...	..	1	..	..	..	...	...	1	...	..	..	58
Pott's fracture	7	...	..	...	1	..	...	4		2	...	...	6	1	...	..	...	35
Fracture of tibia alone—																		
a. Simple	20	4	4	4	..	3	4	4	2	1	2	...	17	7	...	..	..	24
b. Compound	3	...	...	...	...	1	1	...	1	...	...	.	2	...	...	...	1	77
c. Complicated	2	...	..	...	...	1	...		...	...	1	...	2	...	...	.	...	28
Fracture of fibula alone—																		
Simple	25	1	..	1	2	1	6	9	4	2	1	...	9	17	...	...	...	13
Complicated	4		..	.	..	...	1	1	1	1	...	...	4	..	...	...	..	31
Separation of epiphysis	1	...	1	...	...	...	..	..	...	.	...	..	1	...	...	...	..	15
Fracture of foot	9	2	2	...	...	1	3	3	2	..	...	..	9	1	...	...	1	38
Dislocation—																		
a. Hip	1	...	...	...	...	...	...	...	1	...	...	...	1	...	...	...	...	21
b. Patella	1	...	...	...	...	...	1	...	...	...	...	...	1	...	..	...	...	21
c. Ankle	1	..	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	25
Old fracture of ankle	1	...	...	...	...	...	...	1	...	...	...	...	..	1	...	...	...	11
MISCELLANEOUS.																		
Diseases of uterus	...	5	...	...	...	..	2	2	1	...	...	...	..	2	...	3	...	18
Old amputations	4	2	1	..	1	2	2	...	...	...	...	...	...	6	...	...	..	16
Old excisions	10	3	3	6	1	1	1	1	...	...	...	...	1	11	...	1	...	35
Malingering	2	...	..	...	..	...	...	2	...	...	...	...	2	...	...	...	...	7
Unclassified	12	10	2	5	2	1	5	3	3	1	...	...	4	...	...	18	...	6
Total	1061	681	170	149	149	224	368	267	164	148	78	28	997	443	23	147	135	35·5

SUMMARY OF DISEASES AND INJURIES, ETC., IN CLASSES.

I.—GENERAL DISEASES.

Rheumatism.—1 R. Transferred from a Medical Ward for contraction of knee joint straightened on Liston. Alkalies administered.

Gout.—1 R. Deposits about great toe and in cartilages of ear. Secondary cataract.

Rachitis.—2. General. 1 had splints applied for deformity of lower extremities.

Struma.—4. Enlargement of glands in 3. Disease of bone in 1.

Erysipelas.—21 cases arising in the hospital; 25 admitted. See Special Table.

Pyæmia.—12 arising in course of treatment. See Special Table.

Farcy.—1 D. Male, æt. 43, ostler. Contagion from glandered horse one month before admission. Patient had a scratch on his hand at the time; arm swollen three days after contact. Sixteen days after admission, indurated sores all up the radial side of injured arm; purulent discharge; lymphangitis and one gland over internal condyle of humerus affected. No albumen in urine. Previous to death, temperature became raised to 103° in the morning and 104° in the evening, accompanied by shivering; abscesses formed in various parts of body, and were incised. Death 37 days after admission, and about 67 after infection. Post mortem. Pustular eruption over face, arms, and legs. Numerous superficial ulcers over nose, forehead, and eyelids. Cellulitis of legs. Over surface of legs small hard masses as in variola embedded in the skin, showing on section a central collection of pus with an injected zone: some firm and cheesy. Dura mater showed on the surface two or three small points of thick pus. On the surface of brain, especially over the left side, and in front there was a large purulent layer of lymph. Superficial veins of left frontal lobe contained a softened discoloured clot. Injection of pia-matter and grey substance. Superficial surface of lungs showed recent infarcts, some hæmorrhagic, some purulent, as in pyæmia. Branches of pulmonary artery leading to some of the infarcts were filled with discoloured clot. No abscesses in spleen, liver, kidneys, &c.

Syphilis, Primary.—Indurated chancre, &c. All female. All admitted with a well-marked indurated sore on some portion of vulva. Of these 4 had a syphilitic eruption and indurated glands in groin; 3, had indurated glands only, 1, eruption only, 2, sore throat. *Treatment*, local and constitutional; by calomel given as vapour bath, or mercury in form of bin-iodide, mercurial ointment, &c.

Secondary.—64 cases. Male, 5, namely, 2 with eruptions, 1 with ulcer, 2 with gummatous tumour. Female, 59, namely, 33 with mucous tubercles, 3 with ulcer, 2 with ulceration of rectum, 2 with ulceration about anus, 7 with ulceration about genitals, 1 roseola, 3 pustular eruption, 5 squamous eruptions, 1 rupia. 5 other cases treated for Syphilis, but it was not noted in what form the disease showed itself; 2 by gumma, one of which cases proved fatal from pyæmia nine days after admission. In 1 case of syphilitic stricture of rectum the disease was very obstinate to any treatment.

II. NERVOUS SYSTEM.

Neuralgia.—1 C. Sciatica, treated by iodides and subcutaneous injection.

Local Paralysis.—3. R. 2, U. 1. In 1, infantile paralysis. 1, partial paralysis of right arm, coming on soon after a severe concussion of brain eight years before admission. 1, loss of power and sensation in parts supplied by the median nerve coming on after application of tourniquet to the brachial; the patient had ulceration of roots of nails of all fingers supplied by median.

Muscular Spasm. 1, spasm of sphincter ani; treated effectually by leeches to perineum. 1, strabismus. The other 2, rigidity, &c., of muscles in thigh.

III. ORGANS OF SENSE.

Eye.—Conjunctiva, 1. Granular conjunctivitis; treated by nitrate of silver.
,, Cornea, 1. Commencing interstitial keratitis; transferred to Ophthalmic Ward.
,, Glaucoma, 1. Transferred.

Nose.—Polypus, 4. All removed by avulsion or wire ecraseur. 1, lipoma nasi, removed by galvano-cautery. 1, ozæna, due to necrosis of bones in nasal fossæ; sequestra removed.

Ear.—2 cases of deafness. 1 of polypus of ear, removed.

IV. ORGANS OF CIRCULATION.

Aneurism, 4.—Popliteal, 2. Axillary, 1. Traumatic of radial, 1.

a. Small aneurism of popliteal artery. Digital pressure, kept up for 76 hours. Pulsation ceased at end of 60 hours. Cured.

b. Popliteal aneurism. Esmarch's bandage applied for 55 minutes and tourniquet applied with full pressure for 18½ hours; then tourniquet applied lightly for 9½ hours longer. Pulsation ceased 2 hours after treatment had been commenced. Cured.

c. Axillary aneurism involving the first part as well as a portion of the second. Digital pressure on third part of subclavian continued for 11½ hours, and then weight allowed to rest on the aneurism. In 24 hours pulsation in tumour less but still well marked. Treatment by compression, digital and mechanical, applied for over 8 days. 15 days after admission a fixed diet. limiting solids and liquids both, was begun. Pulsation sometimes stopped, but never for any length of time. Patient was in hospital 101 days, and left with the pulsation in aneurism less violent than when admitted.

d. Traumatic aneurism of radial just above the wrist, caused by glass wound. Patient admitted on account of hæmorrhage occurring three days after injury. Esmarch's band arrested hæmorrhage, but it recurred and an incision down to artery laid open a small aneurism. Both ends of artery tied, and clot cleared out. Cured.

Hæmorrhages.—12. C. Hæmorrhage from bladder, 2. Epistaxis, 2; both nares plugged in 1. Ruptured varix in 7. Hæmorrhage from gums after tooth extraction, 1.

Phlebitis.—2. C. Both of external saphenous.

Varix.—2. C. 1. R. 1. Of internal saphenous and branches. Treated by obliteration of vein in 1. Elastic stocking in the other.

Plugging of Vein.—2. 1 a female suffering from amenorrhœa.

V. ORGANS OF RESPIRATION.

Diphtheria.—1. Fatal within 24 hours of admission. Patient a child.

Empyema.—1. Discharging externally after a previous tapping and incision. Transferred to Medical Ward.

VI. DIGESTIVE SYSTEM.

Inflamed Tonsils. 1. Partial removal by knife.

Stricture of Œsophagus. 3. Causes in 1 probably syphilis; 1 due to warty growth; 1 doubtful; all, however, apparently non-malignant, and relieved by bougie.

Intestinal Obstruction.—3. In fatal case right lumbar colotomy. Patient lived 7 days after operation. P. M. Cancerous deposits in sigmoid flexure; peritonitis and perforation of gut. The other two cases relieved by belladonna internally, and by oleaginous enemata. One of these cases has since succumbed to a third attack of obstruction.

Intussusception.—1. D. Attempt at reduction by injecting water. P.M. Invagination of ileum and cæcum into colon, commencing at ileo-cæcal valve, and extending into colon as far as brim of pelvis on left side. Slight peritonitis.

Hernia—

Irreducible.—2. Urgent symptoms relieved by ice. Trusses fitted.

Strangulated Inguinal.—26. C. 18, R. 1, S. 6, D. 6. Reduced by taxis, aided by ice, in 16. Herniotomy in 8. Refused treatment, 1. Died under chloroform, 1. Of the cases operated upon death occurred from gangrene of intestine in one. Peritonitis, 3. In one case an empyæma bursting into lung, and causing death in about 24 hours, all danger from the effects of the operation having disappeared. 1 case of those cured was admitted twice, and the hernia again reduced without operation. Sac opened in 5 cases with 4 fatal; unopened in 3 with 1 fatal.

Strangulated Femoral.—10. C. 3, D. 7. Youngest case cured, 37; oldest, 62. Youngest that died, 52; oldest 75. Herniotomy in 8 cases. The rest reduced by taxis and ice. Fatal cases, from gangrene of lung in 1 (this case was operated upon for hernia, but nothing found in sac). Peritonitis in 2 cases. Erysipelas, with suppuration about neck of sac in 1. Exhaustion and old age in 1. In 1 no mention made of cause of death. Sac opened in 5, and all fatal; unopened in 2, and 1 fatal.

Umbilical.—1. C. Strangulated five days. Large quantity of omentum removed. Suppuration about sac and in abdominal wall, Incisions. Recovery.

Fæcal abscess.—1. F. Tumour situated in femoral region, painful, fluctuating, and crepitant. Incision, fœtid gas, and pus let out; fæces following subsequently. Fatal in nine days.

Rectum and Anus—

Prolapse of Rectum in 3, of which one case was that of a little girl, admitted twice with prolapse and symptoms suspicious of urinary calculus; sound passed several times, but no stone ever detected. In 1, part of mucous membrane removed by galvano-cautery.

Stricture of Rectum in 6. 1 left immediately. 1 refused colotomy. 2 were complicated with recto-vaginal fistula, and were of doubtful nature. All involving lower part of rectum. 2 cases suspected to be due to syphilis, and 1 had had dysentery. Treatment in 1, division of stricture by the knife. Others treated by dilatation.

Imperforate Rectum.—2. C. 1, S. 1. *a.* Male, æt. 2 days. Anal orifice extended half inch up. Bowel bulging; incision. Cured. *b.* Female, æt. 3 days. Anal orifice extended about half inch up. Exploration by incision in median line could not detect rectum, although the finger could be passed all round brim of pelvis. Unrelieved. Went out.

Fistula in Ano.—18. Operation in 16 cases.

Hæmorrhoids.—11. Of which, 1, external; 4, internal; 5, internal and external; 1, doubtful. Removed by Galvano cautery in 2. Clamp and cautery, 4. Refused operation, 2.

Fissure of Anus.—6. Treated by local application in 5. Stretching sphincter in 1. All females.

Prolapsus Ani.—2. Operation in 1 case.

Imperforate Anus.—2. Same case admitted twice. Incision. Cure.

VII. GENITO-URINARY SYSTEM.

Calculus.—10. C. 8, D. 2. Lithotomy in 7 cases, and 1 fatal. Perineal section in 2 cases, and 1 fatal.

a. æt. 4. Uric acid calculus: fæces by wound at third day; continuing to pass that way over 6 weeks. Cure in 177 days.

b. Æt. 5. Uric acid. Cure in 32 days.

c. Æt. 8. Oxalate of lime. Cure in 73 days.

d. Æt. 20. Oxalate of lime with phosphatic crust. Cure in 47 days.

e. Æt. 20. Oxalate of lime. Cure in 59 days.

f. Æt. 57. 2 stones of lithate of ammonia. Cure in 50 days.

g. Æt. 69. Nature of stone not mentioned. 62 days after operation, death from pyæmia.

h. Æt. 3. Impacted calculus in urethra. Perineal section. Cure in 63 days.

i. Æt. 60. Impacted calculus in urethra, with extravasation. Uræmic on admission. Perineal section. Death, 1 day. Nature and composition of calculus not stated.

Gonorrhœa.—38. Male, 1. Female, 37. Complicated with labial abscess in 7; bubo in 11.

Excoriations.—2. Phimosis, 1. Cases unpresented, 6.

Vaginal Discharge.—16. C. 9. R. 1. S. 6. 3 cases treated for syphilis. 1 had ecthyma. 6 unpresented.

Sores on Vulva.—19. 5 had, besides the soft sores, well-marked syphilitic eruptions. 2 had mucous tubercles. 1 had sore throat and indurated glands in groins. None of the sores were in themselves indurated.

Hypertrophy of Labium.—1. Removal.

Disease of Vulva.—1. S. Question between epithelioma and a syphilitic mass of condylomata. Part of growth which involved whole of vulva was like flattened mucous tubercles, and the other was like epithelioma, especially that over mons. Patient left of her own accord. No history could be obtained, although, from her general behaviour, &c., it is quite possible that she had run the chance of getting it.

Cyst of Labium. 1. C. Laid open.

Vaginitis.—1. C. Acute suppurative vaginitis, with extensive excoriation and inflamation of external genitals. Treated, lotio plumbi.

Warts on Vulva.—16. C. 10, R. 1. Unpresented, 6. Removed in 7 cases. 3 women were pregnant on admission, and 1 miscarried. In 3 cases treatment for syphilis.

Sores on Penis.—11. In 1 case general adenitis; treated for syphilis Phimosis in 5 cases. Circumcision in 5

Warts on Penis.—2. In both the growth was very redundant.

Gangrene of Penis.—1. Anterior half lost. Cause not known.

Chronic Epididymitis.—2. Probably syphilitic in 1; complicated with hydrocele in 1.

Acute Epididymitis. — 5. All following gonorrhœa. 1 had had the left epididymis enlarged in a previous attack; this time it was the right.

Disease of Testis.—6. Strumous in 2; cystic, 2; enchondroma, 1; gouty, 1; castration in 1 case of cystic disease.

Orchitis.—2. Both from gonorrhœa.

Varicocele.—3. C. 2, S. 1. Left without treatment, 1. Treated by continuous current, 1. By galvano-cautery, 1.

Hæmatocele.—1. C. After injury some years before. Suppuration in sac occurred. Incisions.

Hydrocele.—7. In 1 case double. Treatment in 4 by tapping, and injecting iodine tincture; in 1 port wine injected. 1 not treated; and 1 transferred to Medical Ward with typhus.

Encysted Hydrocele.—2. Tapping in 1; in 1 cyst laid freely open.

Phimosis.—2. Both congenital. Circumcision in both.

Pyelitis.—1. This patient was relieved by the performing of the lateral operation for opening into bladder, but eventually died. P.M. Strumous pyelitis; tubercular disease of lungs. The incision was kept open until his death.

Tubercular Disease of Bladder.—1. Fatal. PM. Horse-shoe kidney; general tuberculosis.

Absence of Bladder !.—2. Same case re admitted. A boy under 15 admitted with a fistulous opening above pubes, which discharged pus and urine. The fistula had been open about two years, but no good history could be obtained about the case. On examination with a sound, or a catheter, it was found that the instrument apparently passed into a cavity in front of prostate, and could never be guided any further. Examination with finger per rectum also came upon a bulging in front of prostate which could be easily felt beyond the saccule. Before he left hospital the first time, the fistulous opening closed. No treatment, except that of rest and keeping a little simple dressing upon the wound being adopted. He returned the second time, however, with the discharge of urine as before.

Cystitis.—5. Males, 2; of whom one had epididymitis and the other enlarged prostate. Females, 3; of whom 1 had prolapse of anterior wall of vagina; 1 had retroflexion of uterus; and 1 had endocervicitis.

Irritable Bladder.—2. Both examined for stone, but none detected.

Imperforate urethra.—1. An infant two days old. Hypospadias. Probe passed.

Retention.—10. Causes in 3, enlarged prostate; 4, chronic stricture; 1, following on traumatic stricture; 1, caused by perineal abscess coming on after gonorrhœa three weeks before. In 2 the retention was obliged to be relieved by aspirator above pubes. In 1 of the fatal cases a post mortem showed extensive disease of kidneys.

Stricture of Urethra.—21. 2 fatal cases, showing in 1 at the post mortem secondary disease of kidneys, abscess in prostate, with false passages burrowing the gland. In the other fatal case the symptoms during life pointed to pyelitis, but there was no post mortem made.

Internal urethrotomy by Ottis' instrument in 1, Richardson's dilator used in 1, and Holt's dilator in 2. The rest treated by catheter.

Urinary Fistula.—9. All resulting from abscess following upon stricture of urethra. In 8 the fistula was in the perineum, and in 1 it was situated near the meatus externus. The stricture in each case was treated by catheter, but in 1 Richardson's dilator was used as well. The fatal case showed at post mortem, tubercular disease of testes, bladder and intestines, as also chronic disease of lungs.

Perineal Abscess.—5. Treated by incision, and the stricture, which was in all cases the primary cause, by catheter.

Urethral Abscess.—1. Followed by fistula, which was relieved by catheter.

Recto-urethral Fistula.—1. Came on after an abscess in prostate two years before admission. Attempt made to close the orifice, but with no success.

Recto-vaginal Fistula.—1 Due to carcinoma, and therefore no attempt at cure tried.

Recto-vesico-vaginal Fistula.—1. Came on after confinement. Patient very short, and pelvis small; labour allowed to become protracted. Caries and necrosis of pubic arch, &c., with sloughing of soft parts, followed. Sent out because she was not in good enough health to undergo an operation with any idea of success.

VIII. GLANDULAR SYSTEM.

Lymphadenoma.—2 *a.* Male, æt. 15. Large masses of glandular tissue about neck and axilla, especially on the right; veins of chest prominent, showing that the mediastinal glands were probably also involved. Liver and spleen both enlarged. Relieved.

b. Male, æt. 51, admitted with the glands in both groins enlarged, as also the axillary glands. He also had a large tumour projecting at lower part and to left of sternum, evidently growing from the mediastinum. 25 days after admission this tumour had greatly increased in size, and had probably absorbed the cartilages of two or three lower true ribs into its interior; spleen enlarged. Blood showed increase in white cells. Death 63 days after admission from asthenia. P.M.—All glands enlarged, and showed characteristic signs of the disease.

Inflamed Gland.—7. In axilla, 2; groin, 3; popliteal space, 1; over parotid, 1. Treated by incisions, &c.

Mammary Abscess.—Intra-mammary in 7. Post-mammary in 1. Of these, 3 came on soon after a confinement, and 2 during lactation.

Chronic Inflammation of Breast.—1. Caused by irritable condition of nipple.

Parotitis.—Patient a male of nearly 50 years old.

Bronchocele.—2. Same case re-admitted. Cystic disease, with sinus discharging most offensive matter.

IX. ORGANS OF LOCOMOTION.

Osseous System—

Periostitis.—9. All acute. Femur affected in 2. Humerus in 2. Tibia in 4. Fibula in 1. In 1 the whole of shaft of fibula was removed for subsequent necrosis, and in 1 amputation at shoulder on account of the necrosis of humerus involving the head of the bone as well as shaft, and the joint being secondarily disorganised. In 3 cases exploratory incisions detected no disease of bone. Pyæmia and death followed in 1 (see sp. table), and another case died from shock following upon the evacuation of a very large abscess which occupied nearly the whole length of thigh. The other two cases relieved by local applications.

Ostitis.—2. Both affecting lower end of femur, and probably syphilitic. Relieved by iodides, &c.

Necrosis and Caries. Superior maxilla.—3, of which 1 was admitted twice. Caused by injury in 1. Sequestra removed in each case.

Inferior Maxilla.—5. Following fracture in 1. Carious teeth present in 3. Caused by a blow in 1. Sequestra removed.

Rib and Sternum.—2. Not treated.

Humerus. 1. Necrosis of greater part of shaft. Shoulder-joint affected. Excision of joint and removal of greater part of shaft. Secondary haemorrhage. Cured with a fairly good limb.

Radius and Ulna.—3. In 1, admitted twice, the shaft of radius was subsequently removed. In the other the upper epiphysis of ulna was diseased; sequestra removed.

Bones of Hand.—4. Necrosis of phalanges in all. Removal of necrosed phalanx in 2. Of finger in 2.

Ilium.—2. Necrosis of crest of ilium; removal of necrosed portion.

Femur.—10. Male, 6. Female, 4. In 2, sequestra in shaft; in 4, at lower end. Sequestra removed. Fatal cases, 2 from pyaemia, and in both the whole shaft of femur was necrosed. (See special table).

Tibia and Fibula.—21. Tibia affected in 19. Fibula in 2. The fatal case showed acute necrosis of shaft of tibia, pericarditis, and secondary abscess in axilla. There were 3 other cases of acute necrosis, of which 2 underwent amputation above knee, because of that joint being involved, and in 1 of these 2 the ankle was also involved. In the remaining case sequestra subsequently removed.

Of the rest, 4 were re-admissions. 1 case had shaft of fibula removed. 1 had a piece of bone removed from upper end of tibia after a previous excision of joint. The remaining 15 cases had sequestra removed. (These include re-admissions.)

Bones of Foot.—Of os calcis, 1; meta-tarsal bones, 5; sesamoid bone in ball of great toe, 1. In one case deformity of foot caused by disease of tarso-metatarsal joints of all the toes; ulceration in sole of foot healed, but patient advised to have foot removed. Went out to come in again some other time. His foot was only about half the length of his healthy one.

The case of disease of os calcis was treated by gouging out the carious bone. Of the other cases, 5 had sequestra removed, and 1 had whole of first metatarsal bone excised.

Tumour of Bone.—6. Of these 4 were exostoses, viz., of ungual phalanx of great toe, in 2 both removed; 1 of lower end of femur, removed; one of nasal process of superior maxilla also removed. The other 2 cases were distinctly new growths, of which one involving lower end of femur was a round-celled sarcoma (subsequently this patient underwent amputation at hip joint, by Mr. Simon, with complete recovery. He had at first refused surgical interference). The other case was that of a boy under 12 years, sent in for disease of hip. He was kept in bed with a long outside splint on for some weeks, when, on examination, it was found that the upper end of femur had become enlarged slightly by an apparently smooth tumour. It was kept under observation for a few weeks longer, and careful measurements taken which showed a steady and somewhat rapid increase in size. He is still under observation as an occasional out-patient, the tumour increasing, but not very fast latterly, and causing the boy very little inconvenience.

Osteo-porosis.—1. Involving greater wing of sphenoid and temporo-malar bones. No treatment.

JOINTS.

Acute Synovitis.—39. Those of the knee were 36 in number; of ankle, 3. Caused by injury in 33; after rheumatic fever, 2; after confinement, 1; no special cause in 3. Treated by Liston splint, ice, etc.

Chronic Synovitis.—12. All cases of knee. In 1 there was a rheumatic taint; 1 originated in a blow; 1 came on after a miscarriage. The rest had no special cause. Treated by rest on a back splint, with counter-irritants, &c.

Abscess.—2. Both involving knee-joint. In 1 the patient was a man of nearly 70 years of age, who was admitted with an abscess on inner side of knee, and involving the joint; amputation above the knee, and recovery. The other was a child under 5 years, who was admitted with an abscess in the thigh, which subsequently involved the knee-joint. Free incisions into joint were made, and the child was making a good recovery, when it was attacked by measles complicated by broncho-pneumonia, and died.

Rheumatoid Arthritis.—1. Attacking 1 knee and both elbow joints.

Anchylosis.—8. Of jaw, 1; treated by partial removal of the horizontal portion of lower jaw, and getting thereby a false joint. Patient was greatly relieved by the operation. 1 case of elbow relieved by breaking down adhesions. 1 case of shoulder, and another of a finger, relieved by breaking down adhesions. 1 of knee, treated by amputation. Of hip 3 cases (2 of these the same case re-admitted). Treated in 1 case, a lad under 20, by subcutaneous section of both femurs, which had become fixed during an attack of rheumatic fever at nearly right angles with the sides of his body. Both limbs were brought to a good position. Passive movement adopted, but he himself would not exert himself to endeavour to get any permanent motion in the joints.

Loose Cartilage.—4. 1 extracted *directly*; 1, after 2 operations, viz., first subcutaneously cutting into joint, and slipping the foreign body into tissues outside joint, and then after an interval removing it by a second operation. The other two cases were sent out with joints fixed in a splint. All occurred in the knee.

Shoulder.—2. Excision in 1. The other case had a splint applied.

Elbow.—6. Excision in 2; partial excision in 1; complicated with phthisis, 1; sent to Margate, 1. The rest relieved by splint and local applications.

Wrist.—2. Excision in 1. The other, a child too young for excision, sent out to be treated as an out-patient.

Sacro-iliac.—1. Abscess incised over the joint. (This patient has since died.)

Hip.—44. C. 5, R. 32, U. 2, S. 2, D. 4. In 14 excision was performed, with a fatal result in 3, viz., 1 from exhaustion; 1 from tubercular meningitis; 1 from hæmorrhage, a few days after operation, a large branch of sciatic artery having been opened by slough. 2 other cases of excision were complicated by erysipelas. (See Special Table.)

In 15 others there was no external wound, and the affection slight and in its commencement; of these 1 had disease of elbow joint, and 2 had measles, whilst under treatment.

Treatment was either American extension with or without long outside, or by Thomas's splint. Of the rest, 2 were admitted with abscess; 4 with sinus, of which 1 died under chloroform which had been given to examine the hip. P.M. —fatty heart. 3 had no external wound, and, although considered fit for operation, left of own accord (2 of these the same case readmitted). 4 had dislocation on to dorsum; 2, anchylosis, but refused operation.

Knee.—61. C. 20, R. 37, U. 1, D. 3. Amputation in 7. Excision in 12; and 1 of those which were amputated had previously undergone excision.

Of the cases excised the disease was synovial in 5; of bone in 5; doubtful in 2. Of the fatal cases, 1 had albuminuria, and so joint not interfered with. P.M. —Caries of external head of tibia, as also of the internal; left kidney large and white; the right was filled with pus, and entirely destroyed, except its capsule. 1 died of miliary tubercle and metastatic abscess. This patient had had thigh amputated. 1, attacked by acute peritonitis. P.M.—Pus in abdomen; pleurisy; no metastatic abscess in liver, &c.

Of the amputations 2 were done because deformity too great to render good result from excision, and 5 were not considered able to undergo a long process of suppuration, &c.

Of the others, 4 were admitted twice during the year; 1 refused treatment. Varicella occurred in 1; erysipelas in 1. (See Special Table.)

Ankle.—7. Cause in 1 was an injury some years previously, when the tibia and fibula were fractured into joint: amputation advised, but not performed. In 5 cases, pain on movement of ankle, and pressing bone surfaces together, were the main symptoms. All treated by rest, and 4 of them sent out in a plaster of Paris splint. In one case joint excised, bone surfaces carious; resulting in useful foot after many months of treatment.

Tarsus.—7. In 1 astragalo-calcanean joint involved: left without treatment In 1, amputation performed. In 2, sequestra removed. In 1 case, a male patient, he had been shot in left buttock 30 years before admission, the ball coming out of groin of same side; there had been some injury done to the sciatic nerve, as all muscles supplied by it were more or less paralised.

Spine. Disease of intervertebral substance.—1. Attacking cervical region; muscles rigid, &c.; neck kept fixed by a leathern splint for 3 weeks. Complete recovery,

Caries with curvature.—9. Disease apparently quiescent. Angular curvature in 8; lateral in 1; viz.—dorsal region in 3; lumbo-dorsal in 2; mid-lumbar in 3; lumbo-sacral in 1. Complications: infantile paralysis in 1; iliac abscess in 2;

lumbar abscess in 3; psoas abscess in 2, of which 1 case had a double psoas abscess. In the fatal case there was psoas abscess, angular curvature in lower dorsal region, and albuminuria. P. M.—Caries of spine, and waxy degeneration of abdominal viscera.

Caries without curvature.—3. The disease apparently in an active stage. In 1 tenderness over mid-dorsal region; complication, phthisis: 1, psoas abscess with tenderness over lumbar region of spine: 1 case had necrosis of lower jaw as well.

X.—APPENDAGES TO ORGANS OF LOCOMOTION.

Enlarged bursæ.—4. In 2 it was the bursa-patellæ which was enlarged; in 1, bursa beneath biceps cubiti; and 1 in popliteal space. Treatment refused in 1; puncture in 2, of which 1 was injected with iodine, and 1 had pressure applied In 1 the tumour was solid, and was removed by semilunar incision along outerside of knee, in order to avoid resulting cicatrix being constantly irritated by being kneeled upon.

Inflamed bursa.—18. Out of these 16 were of bursa-patellæ, 10 of which ended in suppuration, and 1 was followed by multiple abscesses in calf and thigh. Inflamed bunion in 2, the bone being exposed in 1.

Ganglion,—1. C. Compound along palmar surface of index finger. Removed antiseptically.

XI.—CELLULAR TISSUE.

Inflamation.—16. Attacking upper extremity in 9 cases; lower in 4; trunk in 3. The fatal case was a woman who had just been confined a few days before; there was diffuse cellulitis of arm coming on after injury to index finger.

Abscess.—68. In head and neck, 14; upper extremity, 9; trunk, 4; lower extremity, 27; psoas and lumbar, 2; iliac, 3; pelvic, 3; ischio-rectal, 4.

Fatal cases.—1 from erysipelas. P.M.—Meningitis: 1 from pyæmia, following upon diffuse suppuration in neck. P.M.—Suppuration had extended into posterior mediastinum; pyæmic abscess in lungs. (See Special Tables.)

Gangrene.—3. All fatal, and all attacking the toes. In 1 post-mortem showed occlusion of posterior tibial by atheroma; 1 calcified artery; 1 followed upon diffuse inflammation.

Sinus.—4. Following upon abscess in 3. Erysipelas supervening in 1. (See Special Table.)

XII.—CUTANEOUS SYSTEM.

Eruptions.—11. Eczema in 4; herpes zoster in its hœmorrhagic form and round chest in 1; scabies in 2; prurigo in 1; erythema nodosum in 1; erythema simplex in 2.

Ulcer. — 25. On lower extremity in 23 cases. Causes: traumatic in 5; eczematous in 2; phagedænic in 4; varicose in 1; after burn in 3; scald in 1; rest, no special cause.

Onychia.—1. At root of toe nail. Non-specific.

Boil and Carbuncle. Boil on lip; carbuncle on back of neck. Treated by pressure.

XIII.—DEFORMITY AND MALFORMATION.

Wry Neck.—3. Section of sterno-mastoid in 2.

Talipes varus.—1. Congenital in all. Amputation below knee in 1. Division of tibialis anticus in 1.

Talipes valgus.—5. Scarpa's shoe used in 2; tendo Achillis divided in 2.

Talipes equinus.—2. Tenotomy in 2.

Genu valgum.—3. Of which 1 was a case of rachitis. Treated by outside splints, with support round waist, knee, and ankle.

Spina bifida.—1. A female, aged 4; tumour in lumbo-sacral region. Not interfered with.

Extroversio vesicæ.—1. D. Fatal from suppurative nephritis after operation for directing urine into the rectum by Mr. Simon's method.

Cleft palate.—7. Of these, 3 were of soft palate; 2 of hard palate; 2 of hard and soft. Operation in 5 cases, of which 2 were sucessful, and 3 partially only. Fatal cases 2, of which 1 died of pneumonia.

Harelip.—1. Operation successful.

Harelip and cleft palate.—3. In 1, harelip operated upon with success; 1 sent out without treatment on account of not being in fit state for operation; 1 fatal from pneumonia after operation for the harelip, which, however, was unsuccessful.

Contracted knee.—9. Caused by rheumatism in 2; after spontaneous cure of disease of knee-joint in 3; after excision of joint in 3. Treatment in 1 by amputation; tendon of biceps divided in 1; the others treated by gradual extension.

Deformity and malformation of portions of lower extremity.—Supernumerary toes in 2; intra-uterine fracture of tibia and fibula, resulting in almost angular deformity, in 1; so-called "hammer toe" in 2; 1 case in which patella was drawn up so as to leave the articular surface of femur subcutaneous.

Contraction after burn in 4. Face and neck in 2; arm in 2. Treated by division of cicatrix.

XIV.—TUMOURS.

Innocent.—

Fibroma.—5. On the shoulder, in 1 case, which ended fatally from erysipelas, supervening on operation for removal. This patient had several other fibroma about body, but the tumour that was removed was causing him especial pain and inconvenience. (See Special Table.) Of the other cases the tumours were situated on thigh in 2; buttock in 1; leg in 1. All removed.

Enchondroma.—1. Involving part of parotid gland. Removed.

Lipoma.—10. Situated on the back in 8; on the neck in 1; abdominal wall in 1. Fatal case occurred from pneumonia 9 days after operation. Removal of the tumours in all but 1 case.

Adenoma.—6. Of breast in 2; neck in 3; parotid region in 1. Of the cases where the tumour existed in the neck, 1 was admitted twice, the second time with a recurrence of the growth, which, at its second appearance was more like a sarcomatous growth. Nothing was done the second time.

Papilloma.—2. Removal in 1 case from over the shoulder. In the other the growth was situated in floor of mouth, and was not interfered with.

Angioma.—4. Nævi in 3. Venous tumour in lower part of abdominal wall in 1. Treated by excision in 1 case of nævus, the growth showing on section that it was undergoing spontaneous cure; galvano-cautery used in 2; electrolysis in 1, without success—in this case the tumour involved almost the whole of one side of face in an infant of a few months old (this case came to the hospital in October, 1877, to be seen, the tumour had undergone complete cure).

Ovarian.—18. Of these, 7 were in single women. 1 case admitted twice, and one three times. Operation in 6 cases, of which 4 were fatal. Tapping in 10 cases, of which 1 proved fatal from peritonitis. (See Special Table of Ovariotomy,)

Other cystic tumours.—6. Dentigenous in 2; sanguineous 2; dermoid 1. The other was a female, aged 21, who was admitted with a tumour projecting in median line below the chin, and also into floor of mouth, and was at first thought to be ranula. An incision let out from the tumour in the mouth material like that found in an ordinary sebaceous cyst. 12 days after incision, inflammation having previously occurred, secondary hæmorrhage came on, together with dyspnœa, due to inflammatory swelling about base of tongue, and perhaps glottis. Suddenly suffocative dyspnœa set in, and in a few minutes the patient ceased to breathe, but fortunately Mr. Mac Cormac was in the ward at the time, and quickly performed tracheotomy, whilst artificial respiration was being kept up. She recovered consciousness in about half an hour. Tracheotomy tube removed 11 days after operation. When the patient left the hospital the tumour was still visible below the chin, but much less prominent. (Patient was admitted some months after in 1877, and had the tumour removed entire, it having again increased in size.) All the other cases were treated by partial or entire removal of cyst.

Fibro cystic.—2. Unrelieved in 1, viz. in neck, in region of thyroid, on one side, but believed not to be connected with it. Same patient had a curious redundancy of skin and subcutaneous tissue in the neck, and coming after a burn in that part when young, somewhat like that presented by elephantiasis. The other case was a tumour below elbow; removed.

Keloid.—1. Of neck. Removed. This patient had another similar growth on chest.

Lupus.—1. In a female 14 years old, and on the face. Cured rapidly under iodides. Congenital syphilis?

Epulis simplex.—1. On upper jaw. Removed without injuring the jaw itself.

XV.—SARCOMATA.

Fusiform celled.—2. Of forearm in 1; in a man of about 30 years old, who had had the growth removed 3 times previously during 6 years. The other was in a woman of over 60 years of age, who was admitted with a tumour in the thigh on the outer and upper part. Tumour removed by the knife, but up to time of her death, 7 months after the first operation, there was a constant recurrence of the growth in the wound made by the incisions for removal of tumour. The new sprouts were removed several times by cautery or by caustic applications. The original tumour grew into and amongst the muscular structures on outer side of thigh, and in very close quarters to the femoral vessels, making the primary removal very difficult. This case ended fatally, and at the P.M. no secondary deposits were found in any viscus or gland.

In the first case mentioned the tumour was removed with success.

Round-celled.—3. Of superior maxilla 1; a female under 30 years of age; the upper maxilla, which was diseased, was removed soon after admission; first recurrence in 34 days, and this was removed with part of soft palate; recurrence again in 6 weeks, and again removed with part of cheek, which had now become involved. When she left the growth was again commencing. She has since died at her own home.

Another case, that of a female under 20 years of age, was admitted with a tumour in palm of hand, especially involving the tissues amongst the muscles of the thumb, no operation was performed as there were secondary deposits to a large extent in the axilla of same side. She died from pyæmia, after living in hospital many weeks. P.M.—Deposits of new growth in glands of axilla, and pyæmic abscesses in joints. (See Special table.)

The other, a man aged 18, with tumour involving lower end of left femur. Amputation performed at hip-joint. Cured.

Melanotic.—2. Same patient readmitted. A male, age 25, who had had a small tumour removed from inner side of his leg 8 months before admission for the first time, and again in 4 months from growth in the cicatrix. Admitted with recurrence in the cicatrix of the former wounds, and also with some glands in the groin affected. Mr. Jones removed the growth in cicatrix, giving it a wide margin, and also the glands in the groin; but before he left hospital multiple deposits of pigmented masses appeared in the skin of leg and thigh. On his second admission the thigh was covered with melanotic nodules. He is still under observation as an out-patient (September, 1877).

Cystic.—1. Tumour, situated at the front and upper part of left thigh, had been noticed 30 years. Removal. Recurrence of the growth in fresh sprouts over and in the skin round the wound left by excision. These sprouts were removed about 4 times either by cautery or by zinc and sanguinaria paste. Last recurrence 2 months before leaving hospital. She went with a necessarily somewhat stiffened limb, but the wound healed. She was attacked twice during her stay with erysipelas. Length of stay, 280 days. (No recurrence of growth up to November, 1877.)

Myxomata.—2. Same case readmitted. On first time of admission the tumour involved the upper part of the scapula, and Mr. Mac Cormac removed the whole of that bone. Patient went out with a fairly useful upper extremity, but was admitted again two months after with secondary deposits below the clavicle on same side, and with distinct dulness about apex of the lung. Patient died somewhat suddenly, and at post-mortem secondary deposits of the new growth were found in apex of lung. (For a full account of this case see 'Hospital Reports,' vol. vii, 1876.

XVI. CARCINOMATA.

Scirrhus—

Breast.—19. Female in 18. Male in 1. Youngest patient, 34. Oldest, 76. In 2, family history of carcinoma. Removal of breast in 13, of which 1 case was at first suspected to be due to syphilis, as there was an ulcerated surface which took on an apparently syphilitic form; the patient also was not suffering much pain. Also at first under treatment with iodides the ulceration seemed to be healing. Eventually, however, the breast was removed, and section showed that it was characteristic of scirrhus. The two cases which were unrelieved had been previously operated upon, the growth returning in cicatrix and in glands. 2 cases left without operation. There were 2 fatal cases, 1 of which died suddenly from syncope; no post mortem. And the other, in which the growth was extensive, involving the skin and the chest walls, and causing by its extension in the axilla obstruction in the venous circulation of the upper extremity, died from sudden dyspnœa; no post mortem.

Neck.—2. Fatal case; at post mortem showed extensive cancerous deposits involving the glands in the supra-clavicular region and in apex of right lung, also multiple deposits beneath skin over abdomen and chest. In the other case nothing could be done.

Parotid.—1. Involving deep structures. Patient was deaf on the same side, and also had facial paralysis.

Thigh.—2. Same case admitted twice. Tumour occupied the upper and outer part of the right thigh. This tumour was removed, but recurrence commenced 3 months after, and he was re-admitted, and then sent out to come in again later. (Has not been seen again.)

Œsophagus.—2. Same case re-admitted. Admitted with stricture of œsophagus, which was a little improved by the passing of bougies.

Rectum.—3. Colotomy in 1 case, which ended fatally in a short time. Another case refused operation for colotomy. The other was relieved slightly by laxatives.

Vagina.—1. Extensive disease in anterior wall.

Medullary—

Peritoneum.—1. Patient, a woman, admitted with ascites. Peritonitis. Death. P.M.—Extensive medullary cancerous deposits involving peritoneum, pericardium, and pleuræ.

Rectum.—2. Same case re-admitted. Very extensive and very rapid in its growth, involving rectum and buttocks. P.M.—Secondary deposits in liver.

Mouth.—1. Involving part of alveolus of lower jaw, hard and soft palate; very vascular and patient constantly suffering from hæmorrhage. Too advanced for removal.

Epithelioma—

Of Lip.—5. Removal in 3 cases. Glands were involved in 4 cases.

Epithelioma (continued).

Of Tongue.—7. Removal in 2 cases only, and both proved fatal, 1 from pyæmia (see sp. table) and 1 from exhaustion from hæmorrhage due to sloughing in floor of mouth and the opening of a large branch of artery. Ligature of internal carotid. Glandular enlargement in all.

Of palate.—2. Of these 1 proved fatal, and at post mortem showed deposits in both lungs, spleen, and supra-renals.

Of œsophagus.—1. With stricture. Death. P.M.—The growth infiltrating the pharynx and œsophagus. Broncho-pneumonia.

Of Inner Canthus.—Treatment by excision was refused. Mr. McCormac called this a case of "Jacob's Ulcer."

Of Penis.—Patient was a coal-miner. Amputation.

Of Lower Limb.—2. In 1 fatal, after living in hospital nearly a year. The growth was said to have followed upon an injury to the foot. When first admitted there was an ulcer about the great toe, and as this did not heal, the ungual phalanx was removed. Immediately, however, the fresh surface thus formed took on the same appearance as the original ulcer, and gradually spread. Before death, just in front of ankle joint, a similar mass of epithelioma appeared. This patient had several attacks of erysipelas.

The other was a case in which a cicatrix, after gunshot wound many years before, became the seat of an epithelioma. Patient left without treatment, but eventually had his leg amputated at University Hospital.

Recurrent Epithelioma.—2. Both in the hip. Not fit cases for operation.

Undetermined or Tumours of doubtful nature.—4. In iliac fossa, 2. Of scapula, 1. Of thigh, 1.

XVII. GENERAL INJURIES.

Burns.—28. C. 6. R. 5. D. 17. Caused by ordinary flame, 24. Explosion of coal gas, 2; sewer gas, 1; molten lead, 1. Causes of death: Gangrene, 1; peritonitis, 1; head symptoms, 2; chest symptoms, 1; shock in 7; exhaustion, 5. Dressing used was in about equal number of cases for first application. Carron oil and acetic acid with whiting. No post mortem.

Scalds.—30. C. 15. R. 7. D. 8. Caused by hot water in 26; hot potash, 1; hot arrowroot, 1; beer, 2.

Burn and scald.—1. Patient, subject to epilepsy, fell into fire and upset water over himself.

General contusion.—18. Run over in the street, 7. Knocked down by locomotive, 2. Falls from variable distances, 9. None serious.

Multiple injury.—19. C. 9. D. 10.

1. Male, æt. 5. Run over. Contusion of abdomen; lacerated wound of thigh. Peritonitis. C.

2. Female, æt. 5. Severe contusion of thigh, followed by extensive suppuration. Two crushed fingers amputated. Cured.

3. Male, æt. 16. Contused and lacerated wound of leg. Fracture of humerus. Cured.

4. Male, æt. 21. Sub-coracoid dislocation; synovitis of knee. Cured.

5. Male, æt. 39. Fracture with depression over frontal sinus; lacerated wound of eyebrow; fracture of rib. Cured.

6. Male, æt. 69. Scalp wound. Collis's fracture of left arm. Wound followed by erysipelas. Cured.

7. Male, æt. 63. Fracture of base; hæmorrhage from ear, with rupture of membrane. Fracture of rib. Cured.

8. Male, æt. 75. Fracture of clavicle and 2 ribs. Attacked by severe bronchitis. Cured.

9. Male, æt. 7. Comminuted fracture of scapula, clavicle and humerus; collapse. Death in 4 hours.

10. Male, æt. 22. Fracture of 4 lower ribs on both sides; rupture of spleen, liver, and kidney; fracture of sternum, radius and ulna of left arm. Death in ½ hour.

11. Male, æt. 27. Collapse, and death in 8 hours. P.M.—Complete separation of the ossa innominata, with fracture; transverse fracture of third and fourth piece of sacrum and fracture of coccyx. Laceration of urethra 3 inches in front of bladder.

12. Male, æt. 29. Extensive fracture of base of skull and of vertex. Injury to spine. Insensible. Temperature before death, 106·5°. Death in 8 hours. P.M.—Fissure extending across squamo-parietal suture through temporal fossa to lambdoidal suture of same side, and from middle of left half of lambdoidal suture upwards for about 1½ inch, and then backwards to right of horizontal sinus for ½ inch. Body of sixth cervical vertebra with the lateral masses smashed. Upper surface of right corpus striatum lacerated. Great toes smashed. Lacerated rupture of wounds of scalp.

13. Male, æt. 52. Fracture of seven ribs on left side (from the 2nd inclusive) also of clavicle; emphysema; contusion of scalp; traumatic delirium. Caused by fall from a van. Death in 2 days. P.M.—Hæmothorax; lung collapsed; liver and spleen.

14. Female, æt. 55. Scalp wound; fracture of clavicle. Wound followed by erysipelas. P.M.—Diffuse cellulitis behind pharynx and in posterior mediastinum.

15. Male, æt. 30. Scalp wound; compound depressed fracture of skull over occipito-parietal region; compound fracture of both legs. Fall from a scaffold. Very little head symptoms; pyæmia. 27 days in hospital. Death. No post mortem.

16. Male, æt. 55. Fracture of pelvis; comminuted fracture of femur; ruptured urethra. Collapse; died.

17. Female, æt. 60. Scalp wound, bone exposed; Collis's fracture of right arm; bronchitis. Cured.

18. Male, æt. 60. Admitted in state of collapse. Death in a few hours. P.M.—Fractured pelvis, sacrum, ribs, and sternum; hæmorrhage into pleura and at base of brain; no fracture of skull.

16. Female, about 60. Died before brought into the Ward. Fracture of spine, ribs; rupture of liver; hæmorrhage into peritoneal cavity.

XVIII.—LOCAL INJURIES.

Head—

Contusion.—6. All slight.

Scalp wounds.—Bone exposed in 6, not exposed in 19. In 6 considerable hæmorrhage, in 2 erysipelas occurred.

Concussion.—15. Scalp wounds in 10, and bone exposed in 2. Facial paralysis occurred in 3, of which 1 came 14 days after injury; 6 were severe cases; 2 had bleeding from ear. Mania came on in 1, 9 days after injury; he died at the infirmary 27 days after.

Fracture of vault—

a. Without depression in 5. The fatal case on post mortem showed rupture of longitudinal sinus with fracture. Death occurred in a few hours. All cases were compound: 4 fissured, and 1 with fracture of external angular process of orbit of frontal.

b. With depression in 6; 1, fatal. A man, æt. 34, whilst working in a pit, and while his pick-axe was raised above his head to strike, a piece of iron fell and sent the pick back into his skull, causing scalp-wounds over occipital region and across vertex from the fronto-parietal suture, fracturing the skull opposite position of anterior fontanelle, comminuting the bone. He did not become unconscious, but walked to hospital, a distance of half a mile, and would have walked up to the ward if allowed. Mr. Simon trephined and removed several pieces of bone from the wound. Ice applied to the shorn head. Temp. became raised the same evening (Nov. 7th) to 102·7°. Patient next day complained of headache; but for next 7 days nothing special took place, except that the pulse was only just above 60. On the 14th temp. rose to 104° in the evening, and on the 18th he became drowsy and answered questions slowly. This continued until 23rd Nov., when it was found that he had some difficulty in opening his left hand; temp. 100°. 24th.—Partial hemiplegia of left side; trismus; elevation of left eyebrow; talks much more slowly. On the 25th Mr. Simon passed a needle through dura mater at the seat of trephine hole, and no pus could be got at; hæmorrhage, which ceased with pressure; pulse now 45; temp. just above normal. 26th.—Complete hemiplegia. 27th.—Opisthotonos and constant spasmodic attacks whenever he moves. Leeches to temple. 28th.—Trephine again applied and the aperture thus still further enlarged, and a needle puncture in dura mater let out some pus. Dec. 4th.—Has had frequent attacks of spasm; temperature raised to 103°. Morphia injections. Death.

P.M.—Dura mater adherent round trephine tube for some distance. In right anterior lobe of brain there was an abscess containing about ½ oz. of pus, extending from the dura mater at seat of injury to the substance of brain. Rest of brain healthy. Nothing abnormal in cord.

One other case was attacked by erysipelas during recovery, and the rest recovered without complication.

Fracture at base.—3. All fatal.

1. Male, æt. 21. Received a blow on back of head from an engine buffer, stunned at the moment only. Day after admission complained of headache, and was cupped 6 oz. On the 4th day temp. raised to 104°, and erysipelatous erup-

tion appeared over face. Became almost suddenly unconscious on the same evening, and remained so until death in about 6 hours. Temp. 104·8°.

P.M.—Fracture extended from external wound over parietal eminence down to middle fossa beginning ½ an inch in front of coronal suture. A large clot between dura mater and brain, partly in middle and partly in orbital fossa, contusion of brain, rupture of anterior branch of middle meningeal.

2. Male, æt. 13. Run over. Large flap wound exposing 6 inches of bone with extensive fracture of squamous portion of temporal; collapse; hæmorrhage from ear; facial paralysis 5 days after admission. During last 4 days of life temp. was above 102°; highest temp. recorded was 105·7°; no rigors; left elbow and knee painful and swollen; secondary hæmorrhage from temporal just before death, which occurred 11 days after admission.

P.M.—Fracture through petrous of temporal on right side, extending across base through posterior fossa to mastoid portion of left; pus in elbow-joint; no abscesses in other joints or pyæmia deposits in viscera.

3. Male, æt. 26. Admitted 40 hours after the injury; quite insensible, with stertorous breathing; traces of hæmorrhage from left ear. Died 12 hours after admission; the coma increasing. It was stated that 2 nights before admission he had been drinking heavily, and whilst returning home either received a blow on the right eye or fell striking himself on that part. He was picked up and taken home, walking between two men. On reaching home he walked up-stairs and went to bed; during the night he went down stairs once to the w. c. The next morning, however, he did not seem to rouse himself, and his friends became anxious. A medical man saw him, and on the following day, as the patient became worse, ordered him to the hospital.

He had when admitted a wound over the outer angle of right eye, ecchymosis of eyelids and conjunctiva, contusion of left occipito-parietal region, and a contusion of the left shoulder.

P.M.—Fracture commencing from wound over the eye, extending across orbital plate of frontal and the horizontal of ethmoid, which were much comminuted, across body of sphenoid into sella tursica and obliquely outwards along anterior surface of petrous portion of temporal, crossing that bone and going as far as its junction with occipital. Commencing inflammation at base of brain; contusion and laceration of brain over the posterior, inferior, and outer part of left posterior temporo-sphenoidal lobe. Beneath the bone in right orbit there was an adherent clot; beneath wound in scalp the bone was bruised.

The question in this case was whether the man (as one witness stated) had been distinctly struck by some blunt instrument and fallen on to left side of head and shoulder, or whether he had only fallen on to the ground.

Face—

Wounds of.—12. Gunshot, 2; contused, 5; lacerated, 4; incised, 1.

In the case of 1 gunshot injury hæmorrhage could not be controlled until pressure was made on facial by means of hair-lip pin placed beneath it; removed in 4 days. In 1 incised wound of lower lip the parts did not heal on account of the saliva coming through it. Patient to come in again.

Fracture of facial bones.—5. Lower jaw: 2, compound; 1, ununited; malar, 2, of which 1 was compound.

Local injuries (continued).

1 ununited fracture, had broken her jaw 3 weeks, transferred to Medical Ward 12 days after admission for pneumonia; she died there in 6 days.

Dislocation of jaw.—1. Double dislocation, this was of constant occurrence.

Eye.—2. 1 wound of cornea and sclerotic; prolapse of iris; adhesion of iris to edge of wound. 1, a woman, received a stab in eye; collapse, with subsequent total destruction of eye.

Ear.—1. Button in external auditory passage. Extracted.

Neck—

Wound.—6. 1 lacerated, in a child who was run over and trodden on by a horse.

5 self-inflicted wounds of throat.

a. Man admitted in state of collapse; wound in throat above thyroid cartilage. P.M.—Epiglottis divided and the anterior wall of pharynx completely severed back to posterior wall; huge scrotal hernia, which had been strangulated 36 hours; sac contained caput cæcum coli, and lower end of ileum united by old adhesions; no marks of stricture.

b. Thyroid cartilage notched and internal jugular exposed. Patient was just going to be taken to asylum.

c. Trachea nearly divided in half. This was 2nd attempt at suicide.

d. Crucial incision made in median line; trachea opened; melancholia; transferred to asylum.

e. Chisel wound below jaw; much hæmorrhage; mental derangement.

Wound of palate.—1. Child fell on a knife, which pierced hard palate.

Injury to trachea.—1. Child fell across a block of wood, striking its throat. Admitted with extensive emphysema about face and neck; this increased during next 2 days; pain over trachea when touched. Recovered in 14 days. Never had much distress.

Sprain of muscles of neck.—1. Patient fell down stairs, doubling head upon chest.

Chest—

Contusion.—2. Nothing serious.

Fracture of ribs—

a. Simple.—7. 1 had ribs broken, caused by being kicked.

(*b.*) *Complicated.*—11. C. 8. R. 1. D. 2. Of the fatal cases 1, a man, æt. 83, fell about 8 feet off a ladder. Admitted with fracture of ribs, 3rd to 8th inclusive, on the left side; extensive emphysema; bronchitis. P.M.—Rupture of spleen and fracture of ribs; lived only a few hours.

2. Male, æt. 21. Crushed violently; fracture of 2nd, 3rd, and 4th ribs on right side; emphysema; had pneumo thorax 5 days after admission. P.M.—Pleuro pneumonia of left; recent pleurisy on right. Patient lived 36 days.

Of the others: in 2, hæmoptysis; in 4, emphysema; in 1, emphysema and pneumothorax; pneumothorax, 1; bronchitis, 1.

Fracture of costal cartilage.—1. After fall from a ladder.

Back—

Contusion.—4. None of consequence. 1 case had double inguinal hernia truss given.

Sprain—6. In 3 retention of urine.

Concussion.—3. Characterised by acute pain in all; in 1, headache and giddiness as well.

Fractured spine.—6. C. 1. S. 1. D. 4. Of the 4 fatal cases—*a.* Male, æt. 26, fell from a height, alighting on his feet, and then on buttocks. Tenderness well marked over 7th dorsal vertebra. 10 days before death loss of sensation had reached up to ensiform cartilage. Temperature never exceeded 103·2°. Death in 14 days. No. P.M.

b. Female, æt. 25, fell down stairs bending head suddenly forwards on to chest. Loss of sensation in line of nipple. Temperature not over 104°. Death in 5 days. P. M.—Fracture in cervical region, with contusion of cord in cervical enlargement. Broncho-pneumonia; pulmonary collapse.

c. Female, æt. 49, fell from a cart whilst intoxicated. Sensation lost in nipple line. Death in 2 days. Temperature not taken. P. M.—Dislocation of 7th cervical from 1st dorsal vertebra with fracture; contusion of cord; pulmonary congestion.

d. Male, æt. 31. Death soon after admission. P.M.—Fracture of 7th cervical.

Injury to cord without apparent fracture.—2. *a.* Male, æt. 55, fell backwards on to pavement, striking his head. Complained of great pain in back of neck and behind shoulders; slight loss of power in arms and legs; retention. Treated by cupping, and by Liq. Hyd. Perchlor.

b. Male, æt. 33, fell off a cart on to his back, Tenderness over 1st dorsal; tingling and shooting pains with numbness down arms; retention. When he left there was some thickening over the first dorsal vertebra, and numbness along the course of right ulnar nerve.

Fracture of and contusion of coccyx. No consequences.

Abdomen.—

Contusion.—8. 1 fatal from peritonitis; 1 other case had peritonitis, but recovered.

Wound.—1. Stabbed in abdomen in 5 places, only 1, however, perforating; omentum protruded. Peritonitis 3 days after admission. Cure.

Visceral injury.—2. Both fatal. *a.* Male, æt. 21, squeezed between railway buffers; collapse; lived 12 hours. P. M. — Ruptured liver; kidney (right); Hæmothorax, and collapse of right lung; no fracture of ribs.

b. Male, æt. 34, run over by a water cart; catheter passed on admission, no urine; water injected, and this disappeared. Death under chloroform, which was given with idea of perineal section. P.M.—3 pints of bloody fluid in peritoneal cavity, and extravasation of blood amongst the tissues. Liver and right kidney ruptured; urethra also ruptured in membranous portion; false passage by side of prostate; bladder empty.

Pelvis—

Contusion.—1. Patient was standing up by a post, when a cart caught him

Local injuries (continued).

against pelvis, and rolled him round, at the same time somewhat crushing him. No fracture detected. Recovered.

Wound of genitals.—3. Contusion 2, viz. hæmatoma of labium, 1; contusion of perineum and scrotum, resulting in hæmatocele (this patient had had hydrocele for over a year).

Laceration and contusion of vulva and entrance of vagina in 1.

Fracture—Simple.—2. *a.* Male, æt. 50, fall from scaffold; fracture at junction of rami of pubes and ischium. Treated by double Thomas's. Complicated by delirium tremens, and bed sore. Cured.

b. Male, æt. 12, run over; fracture obliquely downwards and backwards through ilium.

Complicated.—2. Both fatal. *a.* Male, æt. 60, crushed between a truck and a gate. Collapse and death in less than 2 hours. P.M.—Compound comminuted fracture of pubes, extending into ramus of pubes; separation of sacro-iliac synchondrosis; extravasation of blood passing down thigh; fracture accross ischium into pectineal line, and through into hip-joint on left side; 2 pints of bloody fluid in peritoneum.

b. Female, æt. 71, said to have been run over by tram-car. Fracture detected near the right sacro-iliac synchondrosis; no injury to bladder apparent. Death in 4 days. No P.M.

Ruptured perineum.—4. 1 case admitted twice; 1 refused treatment; 1 transferred to Obstetric Ward; operation in 1 with success.

XIX.—UPPER EXTREMITY.

Sprain.—1. Of wrist.

Wounds.—10. Lacerated, 6; incised, 2, in 1 of which radial divided; gunshot, 1; poisoned, 1.

Multiple injury.—3. 1 complete severance of right forearm by chaff-cutting machine, with great contusion of soft parts; compound comminuted fracture of left thumb at ungual phalanx; circular performed just below elbow; amputation of phalanx of thumb.

2. Dislocation of right radius, backwards and outwards; fracture of olecranon, and fracture of shaft of ulna. Partial excision 6 weeks after admission; Erysipelas. See Sp. Table.

3. Double Collis fracture.

Fracture of clavicle.—4. 1 patient, æt. 78, very feeble and blind. All at outer third.

Fracture of humerus—Simple.—4. Surgical neck, 2; above condyles, 1; comminuted, 1.

Fracture of humerus—Componnd.—1. Compound and comminuted middle and lower third. Fragments still loose when she left at end of 75 days.

Fracture — Complicated.—5. 2 T-shaped into elbow, and both compound; in 2, both compound and comminuted, amputation by circular at middle of arm in 1; and by flap in upper third in the other; 1 fracture into shoulder joint, good result.

Forearm—Compound fracture.—3. Primary amputation in upper arm in 2. Stiff joint in 1, after compound fracture of olecranon.

Carpus, &c.—8. Of these, crushed hands in 6, requiring amputation in 1 at wrist. Fingers, 1 or more, in 6 others; in 1, marginal phalanx torn off.

Old injury to elbow.—1. Dislocation of radius forwards; fracture of ulna in middle; probable fracture of humerus into elbow-joint; loss of sensation in ulnar nerve. Accident 6 months before admission. Adhesions about joint broken down.

Dislocation of clavicle.—1. Sternal end backwards and upwards by fall on elbow.

Dislocation of humerus.—3. Subcoracoid. 2 reduced by manipulation; 1, a case admitted 5 months after accident, relieved by manipulation.

Dislocation of wrist.—1. Compound dislocation of left wrist, caused by attempting to prevent a heavy block of stone from falling forwards (the hand being extended backwards to its fullest extent). Styloid processes of radius and ulna broken off; partial excision; secondary hœmorrhage. Dismissed for misbehaviour.

Dislocation of metacarpus.—1. Compound dislocation backwards upon carpus. cellulitis; rigors; pyæmia; death. Secondary amputation performed. See Sp. Table.

Ununited fracture of humerus.—1. Re-admission. Ends of bone sawn obliquely, and then pegged together. Plaster of Paris splint. No union when he went out.

XX. LOWER EXTREMITY.

Contusion.—14. In 2 the head of fibula was reduced to complete pulp by direct violence.

Sprain.—11. Of ankle in 10; foot, 1. Treated by a fixed splint of plaster or gum and chalk.

Wounds.—17. Lacerated, 15. Incised, 2. In 4, bone exposed by stripping of periosteum. 3 were wounds over and connected with knee joint; of the incised, 1 divided completely the ligamentum patella.

Wound of joint.—2. 1, a child, supposed to have broken a needle in joint; taken out of Hospital by parents against advice. 1 incised wound. 2 days after admission, acute pain with effusion into joint. Temperature raised to 102·6°. 5 days after this pus pressed out of joint through the wound. Free incisions on outer and inner side. Amputation 33 days after admission, the suppuration having extended, and the joint being thoroughly disorganised. Recovery.

Contusion of hip.—9. 2 were at first thought to be fracture. Examined under chloroform; signs disappeared.

Green stick fracture.—1. History doubtful as to whether it was not rather separation of epiphysis; abscess formed in lower third of thigh. Incision. No deformity left.

Multiple fracture or injury—

1. Male, æt. 34. Railway smash of both legs. Amputation of left above knee;

Local injuries (continued).

right above ankle. Rapid recovery. Both stumps healed with hardly any discharge of pus.

2. Male, æt. 49. Compound comminuted fracture of left leg and of right foot. Amputation of left leg at upper third; right at lower third. For some days it was feared that he would succumb. He had delirium, rigors, high temperature, and at first no action at all about either stump. Recovery.

3. Fracture of left tibia and fibula just above ankle, and fracture of right internal malleolus. The patient, a man æt. 28, fell from a height on to his feet. Neville's splint. Cured.

4. Male, æt. 53. Fracture of femur at middle; transverse; direct violence. Compound fracture of first three toes of left foot. Amputation of toes. Union in femur delayed 3 months. Cured.

5.—Double Pott's, caused by jumping off a steamer on to the pier, this man coming on to his toes instead of the foot, as he intended. Cured.

6.—Male, æt. 35, of intemperate habits; fell off a ladder, and came on his heels. Fracture of tibia and fibula at upper third of right leg; external malleolus compound and comminuted; tibia fractured into ankle. On admission the articular surfaces of left tibia and fibula were removed. Secondary amputation of left leg below knee 43 days after injury, on account of septicæmic symptoms coming on. Recovery.

Fracture of femur, simple.—41. Neck, 14, viz. intracapsular, 4; extracapsular, 10; upper third in 7; middle third in 16; lower third in 3. Comminuted, 1; complicated by measles, 1; bedsore, 1; delirium tremens, 1; old disease of hip, with great deformity and shortening, 1; hæmorrhagic diathesis, 1 (this case is fully described by Mr. Mac Cormac in 'St. Thomas's Hospital Reports,' 1875. Treated: American extension and long outside in all but 2 cases, of which 1 had an inclined plane, and 1, on account of old deformity, treated by leather splint.

Fracture of femur, compound.—3. Fatal in 1, a boy æt. 13; railway injury; amputation in upper third. Death in 2 days from collapse and shock.

In both the others, amputation resorted to; 1 below trochanters, and one in lower half of thigh.

Fracture into joint.—3. T-shaped into knee, in 2; oblique fracture of external condyle into joint in 1.

Fracture of patella.—15. Depressed fracture, 1. Oblique transverse, 1. Transverse, 2 direct; one of them walked about for two days after the accident, causing further displacement. Muscular action was the cause in 11, and 1 of them was admitted 8 weeks after the injury, having meanwhile walked about. Treated by back splint in all.

Rupture of ligamentum patellæ.—1. Patient fell off a van on to his knee.

Fracture of tibia and fibula—

a. Simple.—34. *Seat of fracture* at upper third in 2; middle in 6; junction of middle and lower third in 15; lower third in 12; in 4 the fibula was broken at upper third, and tibia at lower; in one the seat not noted. *Treated* by short outside in 2; Neville's in 5; Liston in 11; Bavarian in 16.

b. Comminuted.—1. Tibia only broken at lower third, fibula in 2 places at upper third. Bavarian splint. Recovery.

c. Compound.—14. C. 9, R. 1, D. 4. *Seat of fracture* lower third in 6; middle in 4; seat not mentioned in 4. Of the 4 deaths, 2 died from pyæmia after amputation (see Sp. Table); 1 died from exhaustion 10 days after amputation; 1 from delirium tremens in 3 days. Of those cured, 1 had erysipelas, and union was delayed by separation of sequestrum, removed 4 months after.

Primary amputation occurred in 5 cases, of which 2 died, and 1 of these from pyæmia. See Sp. Table.

Secondary amputation in 1, who died of pyæmia; this patient refused amputation when he first came in, but 10 days after it was absolutely urged as the only chance of recovery, but he died in 37 days after amputation. See Sp. Table.

Causes: in 9, direct violence; in 4, indirect; in 1, not known; recovery in 5 cases, without any complication; 1 delayed by sequestra.

Of those amputated, and who recovered, 1 had secondary hæmorrhage; 1 had bed sores.

d. Complicated.—Fracture into knee joint. Recovery.

Pott's fracture.—7. Treated by Bavarian in 5; Liston in 2.

Fracture of tibia alone—

a. Simple.—24. *Seat of fracture* upper third in 1; middle in 6; junction of lower and middle third in 6; lower third in 7; malleolus in 1; seat not mentioned in 3. *Direction:* oblique in 5; transverse in 12; not noted in 7. *Cause:* direct in 8; indirect in 15; not noted in 1. *Treated* by short outside in 6; Neville in 3; Liston in 3; Bavarian in 12.

b. Comminuted.—1. Treated by Bavarian.

c. Compound.—3, of which 1 was fatal. An attempt made to save the limb, the injury apparently being but slight. Secondary amputation 13 days after injury. Death from pyæmia in 24 days after admission (see Sp. Table). In 1 case delayed by necrosis of ends of fractured bone.

d. Complicated.—2. Into knee joint in 1. Of inner malleolus with synovitis of ankle, 1.

Fracture of fibula alone.

a. Simple.—26. *Seat of fracture* upper third in 1; middle in 3; middle and lower third in 4; lower third in 11; malleolus in 6; not stated in 1. *Treated* by Bavarian in 17; short outside in 6; Liston in 2; Neville in 1. *Caused* by direct violence in 8; indirect in 18.

b. Complicated.—4. Into ankle in 1; with synovitis of knee in 3, the fracture being at junction of upper and middle third in 1, and head of fibula in 2. *Causes:* direct violence in 3; indirect in 1. Liston and ice.

Separation of epiphysis.—1. In a child aged 5, the upper epiphysis of tibia.

Foot.—11. C. 9, R. 1, D. 1. Fatal case; a woman, æt. 46, of intemperate habits, admitted with comminution of metatarsus and phalanges, caused by a van passing over her foot. Attempt made to save the foot; sloughing; gangrene; secondary amputation by Syme 11 days after admission. Death from pyæmia 19 days after admission. See Sp. Table.

Local injuries (continued).

In 2 other cases, amputation by Syme in 1, and at middle third of leg in the other, both being for crushed foot.

Of the rest, fracture of toes and injury to soft parts, followed by sloughing off of toes in 2, and requiring amputation of toe in 1

Dislocation—

a. Hip.—1. Into sciatic notch. Reduced by manipulation.

b. Patella.—1. Outwards. Whilst the part was examined, the bone slipped back into position. Liston and ice.

c. Ankle.—1. Compound dislocation of foot inwards, caused by a fall from a scaffold on to his foot. No fracture detected. Relieved under chloroform. Liston and ice. Cured.

Old fracture of ankle.—1. Admitted 9 months after injury. Great eversion of foot and deformity. Presented at own request.

XXI.—MISCELLANEOUS.

Diseases of uterus.—5. Menorrhagia in 1; fibroid tumour, 1; fibro-cystic, 1; ulceration os uteri, 2.

Old amputations.—M. 4; F. 2. Re-admissions.

Old excisions.—M. 10; F. 3. Of elbow, 3; knee, 8; hip, 2. Re-admissions.

Malingering.—2. 1, pretended injury to spine; 1, disease of rectum.

Unclassified.—22. M. 12; F. 10.

Trivial injuries, 4. Went out of own accord, without treatment and without being seen by the surgeon, 3; nothing the matter, 7; intoxicated, 2; medical, immediately transferred, 2; unregistered, 4.

TABLE III.—*Surgical Operations,* 1877.

SURGICAL OPERATIONS.	Sex.		Ages.										Result.					Average duration of residence after operation, &c.
	M.	F.	5	10	15	20	30	40	50	60	70	+	C.	R.	U.	S.	D.	
On ARTERIES.																		
Ligature	1	1	...	...	...	...	...	1	...	1	...	...	1	...	...	...	1	9
Temporary compression	3	...	...	...	...	...	...	3	...	...	...	...	2	1	...	...	...	47
Acupressure	1	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	...	16
On VEINS.																		
Obliteration of varicose veins	1	...	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	53
Varicocele	2	...	...	...	...	1	1	...	...	...	...	...	2	...	...	...	...	14
Hæmorrhoids	5	1	...	...	...	...	1	3	1	1	...	...	5	...	...	1	...	11
For HÆMORRHAGE.																		
Plugging nostrils	1	1	...	...	...	...	...	...	...	1	1	...	2	...	...	...	...	11
On JOINTS.																		
Reduction of dislocations—																		
Lower jaw	...	1	...	...	...	...	...	...	...	1	...	...	1	...	...	...	...	9
Clavicle	1	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	36
Humerus	2	1	...	...	...	...	...	2	...	...	1	...	2	1	...	...	...	26
Wrist	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	98
Metacarpus	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	21
Hip	1	...	...	...	...	...	...	...	1	...	...	...	1	...	...	...	...	21
Patella	1	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	21
Ankle	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	25
Excision—																		
Shoulder	1	1	...	...	...	1	...	1	...	...	...	...	2	...	...	...	...	50
Elbow	3	...	3	...	...	...	...	...	...	...	...	...	1	2	...	...	...	107
Wrist	2	...	...	...	...	...	1	1	...	...	...	...	1	...	...	1	...	131
Hip	9	5	4	4	5	...	1	...	...	...	...	...	2	9	...	...	3	171
Knee	8	4	2	3	1	2	3	1	...	...	...	...	10	1	...	...	1	189
Ankle	1	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	413
REMOVAL OF DEAD BONE, &c.																		
Superior maxilla	...	3	...	1	1	1	...	...	...	...	...	...	3	...	...	...	...	22
Inferior maxilla	3	...	...	1	...	...	1	1	...	...	...	...	3	...	...	...	...	10
Sternum	...	1	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	73
Ilium	2	...	...	...	1	...	...	...	1	...	...	...	...	2	...	...	...	48
Nasal cavity	...	1	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	68
Radius	1	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	43
Metacarpus and phalanges	2	1	...	...	...	1	1	...	...	...	1	...	2	1	...	...	...	18
Femur	3	2	1	...	1	1	1	1	...	...	...	...	3	2	...	...	...	62
Tibia	4	1	...	1	1	...	1	1	1	...	...	...	1	4	...	...	...	78
Fibula	1	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	32
Os calcis	1	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	213
Metatarsus and phalanges	3	2	1	...	...	...	2	2	...	...	...	...	2	3	...	...	...	41
Trephining	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	28
Subcutaneous section of femora	1	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	399

Table III—*continued.*

Surgical Operations.	Sex.		Ages.										Result.					Average duration of residence after operation, &c.
	M.	F.	5	10	15	20	30	40	50	60	70	+	C.	R.	U.	S.	D.	
Removal of Dead Bone, &c.—*continued.*																		
For anchylosis of lower jaw		1				1							1					95
For ununited fracture	1								1						1			118
Amputations.																		
Shoulder, for disease	1					1							1					46
Arm, primary, for injury	4		1	1	1					1			4					52
Elbow, secondary ,,	1	1						1			1						2	5
Forearm, primary ,,	2				1			1					2					26
Hand, primary ,,	1						1									1		22
Fingers, primary ,,	3	1	1		1	2							4					23
,, secondary ,,	1						1						1					45
,, for disease	3										3		3					35
Hip. ,,	1					1							1					81
Thigh—																		
Upper third, primary, for injury.	2			1	1								1				1	31
Middle third, primary ,,	2		2										2					79
,, ,, secondary ,,	2		1		1								2					66
,, ,, for disease	1	1		1				1					1			1		43
Lower third, secondary, for injury	2								1	1							2	22
,, ,, for disease	4	5	1		3		2	2			1		9					71
Through knee—																		
Primary for injury	2				1						1		1				1	75
,, for disease	1	1			1		1						2					131
Leg—																		
Primary, for injury	3						1	1				1	2				1	69
Secondary ,,	1							1					1					102
For disease	2	4		2	2		1					1	6					70
Syme's, primary for injury	1		1										1					94
,, secondary ,,		1							1								1	8
Toes, primary, ,,	2							1		1			2					79
,, secondary	1						1						1					32
,, disease	1									1			1					30
Supernumerary toes		2	2										2					9
Deformity of toe	2						1	1					2					19
Double amputation, lower extremity, for injury.	2							1	1				2					133
Removal of Tumours, &c.																		
Hypertrophy of labium		1					1							1				26
Warts	2	7				5	4						7	2				24
Polypus		4					4						3	1				38
Tumour of bursa patellæ		1						1					1					45
Papilloma	1									1			1					19
Fibroma	2	3				1	1		2			1	4				1	19
Adenoma	1	4			2		1	1	1				5					17
Lipoma	3	6				2	2	4			1		8				1	13
Enchondroma	1									1			1					16

TABLE III—*continued.*

SURGICAL OPERATIONS.	Sex.		Ages.										Result.					Average duration of residence after operation, &c.
	M.	F.	5	10	15	20	30	40	50	60	70	+	C.	R.	U.	S.	D	
REMOVAL OF TUMOURS, &c.—*continued.*																		
Fibro-cystic	...	1	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	10
Ovarian	...	6	...	...	...	...	...	1	2	2	1	...	2	...	...	...	4	17
Other cystic	1	3	...	...	2	1	...	1	...	...	...	...	4	...	...	...	...	32
Lipoma nasi	1	...	...	...	...	...	...	...	...	...	1	...	...	1	...	...	...	24
Epulis	1	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	4
Ganglion	...	1	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	18
Keloid	1	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	20
Sarcomata	2	4	...	...	...	...	3	...	...	...	2	1	2	1	1	...	2	163
Scapula for myxoma	...	1	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	102
Angioma	3	1	2	1	...	1	...	...	...	...	...	...	3	1	...	...	...	43
Scirrhus of breast	...	13	...	...	...	...	...	3	7	3	...	...	13	...	...	...	...	52
,, thigh	1	...	...	...	...	...	...	...	...	1	...	...	1	...	...	...	...	79
Epithelioma of lip	3	...	...	...	...	...	...	...	...	1	...	2	3	...	...	...	..	16
,, tongue	1	1	...	...	...	...	...	...	...	2	...	...	...	...	...	...	2	14
,, penis	1	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	17
Exostoses	2	2	...	...	1	1	1	1	...	...	...	...	4	...	...	...	...	33
By lithotomy	7	...	2	1	...	2	...	...	...	2	...	...	6	...	...	..	1	53
From urethra, perineal section	2	...	1	...	...	...	...	...	...	...	1	...	1	...	...	...	1	32
INCISIONS, &c.																		
Tracheotomy	...	1	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	48
Colotomy	1	1	...	...	...	...	1	...	...	1	...	...	...	...	...	...	2	21
Strangulated hernia, sac opened—																		
Inguinal	5	...	...	...	...	...	1	...	...	2	2	...	1	...	...	...	4	16
Femoral	...	5	...	...	...	...	...	...	...	...	3	2	...	...	...	...	5	9
Umbilical	...	1	...	...	...	...	...	...	1	...	...	...	1	...	...	...	...	48
Strangulated hernia, sac unopened—																		
Inguinal	3	...	1	...	...	...	1	...	...	...	1	...	2	...	...	...	1	17
Femoral	...	2	...	...	...	...	...	1	...	1	...	...	1	...	...	...	1	22
Interal urethrotomy	1	...	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	9
Sudden dilatation of urethra	5	...	...	...	...	...	2	2	...	1	...	...	4	...	...	...	1	12
Fistula in ano	13	4	1	...	1	...	4	3	5	2	1	...	17	...	...	...	...	22
Division of stricture of rectum	...	1	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	24
Ruptured perineum	...	1	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	22
Removal of tonsils	...	1	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	3
Tenotomy—																		
Talipes	2	1	2	1	...	...	...	...	...	...	...	...	1	2	...	...	...	80
Torticollis	2	...	1	1	...	...	...	...	...	...	...	...	1	1	...	...	...	8
Contracted knee	...	1	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...	179
Circumcision for phymosis	7	...	1	1	...	2	2	1	...	...	...	...	7	...	...	...	...	22
Castration	1	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	44
Fæcal abscess	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1	8
Reparative—																		
Ulcer, incision round	2	1	...	...	...	...	1	2	...	...	...	...	1	2	...	...	...	74
,, grafting	1	1	...	...	2	...	...	...	...	...	...	...	...	2	...	...	...	49

TABLE III—*continued.*

SURGICAL OPERATIONS	Sex M.	 F.	Ages 5	 10	 15	 20	 30	 40	 50	 60	 70	 +	Result. C.	 R.	 U.	 S.	 D.	Average duration of residence after operation, &c.
INCISIONS, &c.—*continued.*																		
Cicatrices—																		
Lip	...	1	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	7
Neck, &c.	2	...	1	...	1	...	...	...	...	...	...	...	...	2	...	...	...	81
MALFORMATION.																		
Cleft palate	4	1	1	2	1	...	1	...	...	...	...	...	2	3	...	...	...	36
Harelip	3	...	3	...	...	...	...	...	...	...	...	...	2	...	...	...	1	44
Imperforate anus	1	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	10
" rectum	1	1	2	...	...	...	...	...	...	...	...	...	1	...	1	...	...	10
" urethra	1	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1
Operation for—																		
Removal of loose cartilages	2	...	...	...	...	...	...	1	...	1	...	...	2	...	...	...	...	38
For extroversio vesicæ	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	24
Tapping ovarian	...	10	...	...	...	...	1	1	2	4	2	...	...	9	...	...	1	20
" hydrocele	7	...	...	...	...	...	1	2	2	2	...	...	5	2	...	...	...	9
" encysted hydrocele	2	...	...	...	...	1	...	...	...	...	...	1	1	1	...	...	...	12
" urinary bladder above pubes	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	5
For prolapsus recti	...	1	...	...	...	...	...	...	1	...	...	...	1	...	...	...	...	40
" " ani	...	1	...	...	...	...	...	...	1	...	...	...	1	...	...	...	...	40
Lithotomy operation for relief of urgent bladder symptoms only	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	34
Fissure of anus treated by stretching sphincter, &c.	...	1	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	15
HERNIA REDUCED BY TAXIS AIDED BY ICE.																		
Inguinal	16	...	3	...	...	1	3	5	...	1	3	...	16	...	...	...	...	11
Femoral	...	2	...	...	...	...	...	...	...	1	1	...	2	...	...	...	...	6
Totals	237	143	41	24	35	31	72	64	33	37	30	10	259	65	3	6	47	

Special Table I.—*Erysipelas arising in the Wards.*

No.	Occupation.	Sex.	Age.	Nature of disease or injury.	Occurrence after injury, &c.	Parts attacked.	Result.	Treatment.
1	Widow	F.	69	Epithelioma of foot	4 days	Foot	Cured of erysipelas	
2	„	F.	61	After removal of sarcoma	9 „	Thigh, buttock	„	
3	School	M.	10	Acute necrosis of tibia	24 „	About incision, wounds of leg	„	
4	Traveller	M.	21	Necrosis of metatarsal bone	30 „	Starting from sinus on foot	Transferred eventually to medical ward	
5	Bricklayer	M.	27	Disease of hip	3 „	About hip where incisions had been made	Subsequent excision of hip	
6	Child	F.	12	„ „	131 „	About hip	Subsequent excision	
7	Governess	F.	39	Of knee, amputation	9 „	About stump and up thigh and buttock	Cured	Locally, Lot. Plum. or Cat. Lini.
8	Boiler-maker	M.	59	Abscess of leg	39 „	Leg	Death from meningitis in 22 days	
9	Carman	M.	29	„ in popliteal space	?	Leg and thigh	Cured	Constitutional, Iron or Quinine, &c.
10	School	M.	13	Sinus about hip	54 „	About hip	„	
11	Widow	F.	32	Ulcer, after incision of	32 „	Leg	„	
12	Servant	M.	49	Removal of fibroma	7 „	Shoulder and back	Death in 11 days	
13	Widow	F.	69	Femoral hernia, after operation	3 „	About groin	Death in less than 12 hours	
14	Nurse	F.	69	Scalp wound	3 „	Scalp	Cured	
15	Widow	F.	55	„	1st attack 2 days, 2nd 25 days	Scalp	Death in 15 days after 2nd attack. P.M.—Diffuse cellulitis behind pharynx and in post. mediastinum	
16	Painter	M.	64	„	5 „	„	Cured	
17	Gin-dealer	M.	38	„	7 „	„	„	
18	Butcher	M.	38	Comp. depressed fracture over frontal eminence	14 „	Scalp and face	„	
19	Railway porter	M.	21	Scalp wound, fracture of base of skull	4 „	Face	Death in 36 hours	
20	Printer	M.	34	Comp. fracture of ulna	6 „	About arm and forearm very diffuse	Cured	
21	Mason	M.	35	Comp. fracture of tibia and fibula	52 „	Leg	„	

SPECIAL TABLE II.—*Erysipelas admitted.*

No.	Occupation	Sex.	Age.	Cause	Part affected.	Result.
1	Labourer	M.	61	Injury to hand	Hand and forearm	Subsequent amputation of index finger.
2	Widow	F.	60	Not known	Of face with abscess	Cured.
3	Servant	F.	60	,,	Of leg and thigh	,,
4	,,	F.	56	Contusion	Of foot and leg	,,
5	Distiller	M.	57	Contused wound	Of forearm	,,
6	Widow	F.	56	Ulcer	Of leg	,,
7	Labourer	M.	51	Cause not known	Face	,,
8	Widow	F.	50	Incised wound of scalp	Face and scalp	,,
9	Labourer	M.	46	Contusion of eye	,, ,,	,,
10	Cooper	M.	40	Incised wound over knee	About knee and leg	,,
11	Watchman	M.	38	Contusion	Leg	,,
12	None	M.	36	Sore on leg from pressure	,,	,,
13	Ex Army	M.	36	Injury to arm	Phlegmonous erysipelas of forearm	Death in four days. P.M.—Pneumonia.
14	Widow	F.	33	Contusion of scalp	Face and scalp	Cured.
15	Housekeeper	F.	33	,, arm	Arm and shoulder	,,
16	Needle-woman	F.	29	Chafing of boot	Leg	,,
17	Labourer	M.	27	Contusion	Face	,,
18	Cigar maker	M.	26	Wound of scalp	,,	,,
19	Boiler maker	M.	24	Contusion	Scalp	,,
20	Servant	F.	24	From cold	Phlegmonous erysipelas of arm	,,
21	Labourer	M.	23	Contusion of thigh	Thigh	,,
22	Servant	F.	18	Not known	Not mentioned where	,,
23	Labourer	M.	16	From a kick	Face	,,
24	Child	M.	6	Cut on forehead	,,	,,
25	,,	M.	1½	Scratch	Calf of leg	,,

SPECIAL TABLE III.*—*Number of Cases of Erysipelas arising in each month and in which Ward.*

Month.	Elizabeth.	Alexandra.	Victoria.	Albert.	Edward.	Leopold.	Henry.	Total.
January . .	...	...	...	...	...	...	1	1
February . .	...	3	...	...	...	...	...	3
March . . .	...	1	...	...	1	1	...	3
April . . .	1	...	...	...	...	2	...	3
May . . .	...	...	...	...	...	2	...	2
June . . .	...	...	...	...	1	...	...	1
July . . .	...	...	...	...	...	2	...	2
August . .	...	...	...	...	...	...	...	...
September . .	...	...	...	1	1	...	...	2
October . .	...	...	...	...	...	...	...	...
November . .	...	1	...	...	1	...	...	2
December . .	2†	...	...	...	...	...	...	2
Total in each ward	3	5	...	1	4	7	1	21

Of these 21 cases—

Mr. Simon had 1 case.
Mr. Jones „ 5 cases.
Mr. Croft „ 11 „
Mr. Mac Cormac had 3 cases.
Mr. Mason „ 1 case.

SPECIAL TABLE IV.—*Cases of Erysipelas admitted each month.*

Month.	Ann.	William.	Henry.	Total.
January	2	...	...	2
February	...	1	...	1
March	1	1	...	2
April	...	1	1	2
May	...	3	1	4
June	...	1	1	2
July	2	2	1	5
August	1	...	...	1
September	...	...	...	...
October	1	...	...	1
November	2	...	...	2
December	1	2	...	3
Total in each ward . .	10	11	4	25

Of these 25 cases—

Mr. Simon had 3 cases.
Mr. Jones „ 4 „
Mr. Croft had 13 cases.
Mr. Mac Cormac „ 5 „

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* Compare this table with Table IV.

† These two cases occurred in December, 1875.

Special Table V.—*Pyæmia.*

No.	Occupation.	Sex.	Age.	Nature of disease or injury	Symptoms, &c.	Post-mortem.	Treatment.
1	Widow	F.	40	Syphilitic gumma on thigh and foot, both discharging	Incision made into tumour in thigh; blood only let out 5 days after admission; 2 days after this the temp. recorded was 101° in the evening, 102° in the morning; no rigors	From the local abscess in thigh suppuration had extended up the thigh and also into knee-joint; spleen contained recent infarcts, as also the kidneys	Potassii Iodidi, gr. x. t. d., for the syphilitic affection.
2	Carpenter	M.	69	Vesical calculus; lithotomy	Operation performed on the 29th March. On the 5th April fæces began to come through the wound; diarrhœa. April 22nd—Shivering, vomiting, with temp. of 103°; diarrhœa. Death 23 days after the first and only rigor	Pyæmic abscesses in kidneys and lungs; hypostatic congestion of lungs; œdema of glottis, with ulceration of larynx	Opium for the diarrhœa.
3	Widow	F.	38	Acute periostitis of femur; incision	Admitted on 17th Feb. On the 20th an abscess opened on side of neck, and another on the right forearm; no rigors, but had high temp. with sweating. On the 24th a distinct rigor, with temp. of 104·2°, followed by profuse sweating. On the 27th five rigors in the 24 hours, the highest temperature being 105·2°	No post-mortem	—
4	Labourer	M.	17	Abscess in neck; sloughing of cellular tissue; lost a great deal of blood	No rigors; death 12 days after admission	Diffuse suppuration in neck, extending into mediastinum; secondary abscesses in lung-	Chlorate of Potash and Quinine.
5	None	F.	20	Round-celled sarcoma in ball of thumb; secondary deposits in axilla	Chronic form of pyæmia. On admission, Feb. 22nd, temp. 103·8°; albumen in urine. March 3rd—The temp. 106°; no rigor. From this to the 10th temp. kept up to 102·8°. March 27th—Superficial abscess over right elbow; arm swollen,	Pyæmic abscesses in shoulder and elbow; thrombosis of veins of lower limb; pleuro-pneumonia	Exploratory incisions into shoulder-joint.

					and painful, and right shoulder also swollen and tender; temp. still continues over 102°; has diarrhœa; involuntary passage of fæces; not sensible, but lies in a semi-comatose condition. Death 79 days after admission. Exploratory punctures made into right shoulder-joint a few days before death		
6	Labourer	M.	60	Epithelioma of tongue removed by galvano-cautery	He had the growth removed on April 1st, and within 10 days was up and about the ward apparently well. On the 19th he complained of feeling cold and shivering. On the 24th he died, having had several rigors in 48 hours	Pyæmic abscesses in kidneys, spleen, and lungs	Quinine.
7	Labourer	M.	30	Scalp wound, compound depressed fracture of skull, compound fracture of both legs	Admitted on the 17th June; temp. during the first 6 days was high, due to the general injuries. July 3rd—Suppuration in the right leg; incisions; had had a rigor 2 nights before. On the 7th another rigor. The temp. for the last week had been considerably over 103° in the evening, the highest in the evening being 105·8°. On the 11th he had as many as ten rigors in 24 hours. July 12th—Rigors continuing; delirium; quinine has been ordered. On the 13th he had three rigors. Death 27 days after admission, and 14 after first rigor. Highest temp. recorded 106°	No post-mortem	Quinine in 6 gr. doses.
8	Engine-driver	M.	32	Compound dislocation of metacarpus upon carpus	There was considerable laceration of soft parts; treated by irrigation. On the 3rd of April, 7 days after admission, there were signs of commencing cellulitis; free incisions; carbolic lotion. On the 12th three rigors, and the highest temp. taken was 106·2°. On the 13th another rigor; amputation through elbow; temp. 105·8° in the evening; rigor and sweats. The 14th he had three rigors, and the temp. at each rigor was over 105°. On the 15th the morning temp. was 105°, and during the day he had another rigor; no swellings. Death on the 17th, viz. 14 days after first rigor, &c.	Pyæmic deposits in viscera	Secondary amputation

Special Table V—*continued.*

No	Occupation.	Sex.	Age	Nature of disease or injury.	Symptoms, &c.	Post-mortem.	Treatment.
9	Carman	M.	57	Compound comminuted fracture of tibia and fibula	Leg crushed between a cart and lamp-post. Patient was advised primary amputation but refused. Temp. became raised 2 days after admission, and continued on an average 102° from the 19th Feb. to 24th inclusive; also delirious. On 25th swelling in the leg had become much greater; vesication; sloughs forming. On 26th quantity of offensive pus let out (the leg had during all this time been dressed antiseptically). On 28th secondary amputation. March 9th—An abscess opened in the back over sacrum. On the 14th temp., which since the amputation had gone down, rose to 103·9°. 15th—A rigor. 17th—Sweet breath, sallow skin. On the 22nd, although he had since the 17th three or four rigors, he was better apparently. April 1st—Temp. in the evening, with a rigor, was 106°. On the 2nd and 3rd more rigors, with high temp.; jaundiced skin, &c. Death on the 10th April, 42 days after the secondary amputation, and 26 days from first rigor	Abscesses in liver and spleen; thrombosis in internal saphenous vein	Secondary amputation; subcutaneous injections of carbolic acid.
10	Porter	M.	31	Railway smash of left leg; primary amputation below knee	Admitted Aug. 14th. Up to 3rd week went on well, when temp. rose to 103°, and on the 1st Sept. rigor at early morning; again on the 2nd, with temp. of 103°; jaundiced aspect; sickness, &c. Rigors repeated on the 3rd; twice on the 4th again. On the 8th pus evacuated from	No post-mortem.	Quinine, and incisions.

					the left knee. Death on the 9th. Sallowness of countenance continued to the last. The temp. with a rigor on the 8th was 104°. Death 9 days from first symptom of pyæmia		
11	Carman	M.	44	Fracture of tibia, with small wound not connected with fracture	Admitted with fracture of tibia on the 12th Jan., and on the 14th the limb became much swollen and somewhat red. 18th—Temp. raised to 102°; limb much more swollen, as also above the knee. Mr. Jones made free incision, and let out a quantity of pus. On the 24th Jan. the bone appeared through the wound. Secondary amputation on the 25th above the knee. On the 4th Feb. stump swollen and red. On the 11th temp. rose to 103°, and on the 12th had a rigor, having, however, had one on the evening of the 11th; temp. was 105·6°. 14th—Sweet-smelling breath; profuse sweating, rigors, &c., since the 12th. 16th—No more rigors since the 14th, but temp. 105·6° last night. 18th—Death, viz. 24 days after secondary amputation and 7 days after first rigor. The 4th Feb., however, was probably a commencement of bad symptoms	Pyæmic deposits in liver and lungs; empyema; no osteo-myelitis. ?Was pyæmia developed before amputation ?	Quinine. Secondary amputation.
12	Charwoman	F.	46	Crushed foot, secondary amputation for gangrenous inflammation	Admitted May 7th. Attempt to save the foot, which was much comminuted about the metatarsus, ended in gangrenous inflammation. Line of demarcation having formed, Syme's amputation on the 18th. On the 20th temperature 105°; wandering. 24th—Chest symptoms, dyspnœa, &c. Death on the 26th, viz. 8 days after operation	Pyæmic inflammation of knee-joint; abscesses in right lung; pleurisy. ?Was pyæmia developed before operation ?	Secondary amputation.

TABLE VI, *showing the Number of Cases of Pyæmia occurring in each Month and in which Ward.*

Month.	Wards.					Total.
	Alexandra.	Elizabeth.	Albert.	Edward.	Leopold.	
January . . .	1	...	...	...	1	2
February . . .	1	...	...	1	...	2
March . . .	...	...	...	...	...	...
April . . .	...	...	1	...	2	3
May . . .	...	1	...	1	...	2
June . . .	...	...	...	...	...	...
July . . .	...	...	...	2	...	2
August . . .	...	...	...	...	...	...
September . .	...	...	...	...	1	1
October . . .	...	...	...	...	...	...
November . .	...	...	...	...	...	...
December . .	...	...	...	...	...	...
Total . . .	2	1	1	4	4	12

SURGEONS.

		Cases.
Mr. Simon . . .	had	2
Mr. Jones . . .	„	2
Mr. Croft . . .	„	2
Mr. Mac Cormac . .	„	5
Mr. Wagstaffe . .	„	1
Total . .		12

Special Table VII.—*Hernia.*

No.	Occupation.	Sex.	Age.	Nature of hernia.	Previous existence of.	Length of time of strangulation.	Treatment.	Contents of sac.	Result.	Remarks.
1	Labourer	M	68	Scrotal	40 years	4 days	Operation	Not opened	Death in 1 day	P. M.—Peritonitis ; caput coli and piece of ileum in sac.
2	„	M	65	Inguinal	16 „	24 hours	„	Small intestine	„ 3 days	The piece of strangulated intestine was gangrenous. No P.M.
3	„	M	64	Scrotal	2 „	36 „	„	Congested „	„ 4 „	No P.M. Part of intestine not mentioned.
4	Waiter	M	60	„	Some years	2 days	„	Cæcum & ileum	„ 23 „	Died from an old empyema bursting into left lung.
5	Farrier	M	58	Inguinal	„	1 day	„	Omentum and colon	„ 20 „	P. M.—Acute peritonitis ; granular kidneys.
6	Carpenter	M	50	„	20 years	24 hours	Taxis	...	„ 3 „	Taxis reduced the extreme mass of hernia, but symptoms continued. Died whilst being put under chloroform.
7	Infant	M	5 mnths	„	5 weeks	4 days	Operation	Sac unopened	Cured	Taken out by parents before incision-wound closed.
8	Publican	M	36	„	16 years	4 hours	...	...	Unrelieved	Taken out unrelieved and against advice.
9	Clerk	M	67	„	15 „	24 „	Ice	...	Cured	Truss ordered, but the instrument not fitting he went out without one, and was admitted again in a few days with a second strangulation, which was again reduced by ice.
10	Clerk	M	67	„	15 „	A few hours	„	...	„	
11	Labourer	M	62	„	20 „	8½ hours	Taxis & ice	...	„	Given a truss.
12	„	M	60	„	5 days	5 days	Ice	...	„	
13	„	M	45	„	Sudden	A few hours	„	...	„	
14	Stoker	M	40	„	10 years	30 hours	Taxis & ice	...	„	
15	Carman	M	39	„	5 „	3 days	Ice and tapping sac	...	„	
16	Labourer	M	39	„	15 „	2 „	Ice	...	„	
17	„	M	31	„	15 „	A few hours	„	...	„	
18	Cabdriver	M	30	„	Sudden	„	Operation	Sac not opened	„	

SPECIAL TABLE VII.—*continued.*

No.	Occupation	Sex	Age	Nature of hernia	Previous existence of	Length of time of strangulation	Treatment	Contents of sac	Result	Remarks
19	Engineer	M	28	Inguinal	7 years	2 hours	Operation	Congested intestine	Cured	Portion of intestine not mentioned.
20	Barman	M	26	,,	Sudden	A few hours	Taxis	...	,,	Given a truss.
21	Labourer	M	21	,,	,,	1 hour	Ice	...	,,	
22	Painter	M	22	,,	9 years	...	,,	...	,,	Developed melancholia.
23	Tailor	M	18	,,	Sudden	15 hours	,,	...	,,	Given a truss.
24	Child	M	4½	Inguinal	12 months	12 hours	,,	...	,,	
25	,,	M	2	,,	,,	...	,,	...	,,	
26	Infant	M	1½	Scrotal	Not known	...	,,	...	,,	
27	Widow	F	75	Femoral	Not known	...	Operation	...	Death in 2 days	
28	,,	F	73	,,	,,	About 3 dys.	,,	Small intestine	,, 3 ,,	P. M.—Intestine thickened with old inflammation; bronchitis.
29	,,	F	69	,,	14 years	2 days	,,	Small intestine and omentum	,, 3 ,,	Erysipelas on second day.
30	Labelcutter	F	64	,,	Not known	...	,,	...	,, 33 ,,	P. M.—Senility. All anxiety of death as a result of the operation had ceased many days before.
31	Ironer	F	64	,,	,,	18 hours	,,	...	,, 5 ,,	Acute peritonitis. No P. M.
32	None	F	60	,,	20 years	2 days	,,	Sac not opened	,, 4 ,,	P. M.—Acute peritonitis; inflammation round neck of sac.
33	,,	F	52	,,	Not known	...	,,	No hernia found	,, 7 ,,	P. M.—Gangrene of right lung, with tubercular deposits.
34	Cabinet maker	M	63	,,	2 years	A few hours	Taxis with chloroform	...	Cured	Truss given.
35	Nurse	F	58	,,	A few years	4 hours	Reduced in a bath	...	,,	This patient had been operated upon 12 months before for strangulated hernia.
36	Ironer	F	37	,,	10 years	4 days	Operation	...	,,	Intestine covered with inflammatory lymph.
37	Servant	F	15	,,	6 ,,	Not known	Ice	? Omentum	Relieved	
38	,,	F	21	,,	5 ,,	1 week	,,	...	,,	Irreducible.
39	Married	F	43	Umbilical	10 ,,	5 days	Operation	Omentum and intestine	Cured	Truss given.

SPECIAL TABLE VIII.—*Excision of Hip*

No.	Sex.	Age.	Occupation.	How long disease has existed.	Treatment.	State of joint found at operation.	Result, &c
1	M.	27	Bricklayer	4 months	Partial excision	Necrosis and caries of rim of acetabulum and of ilium in neighbourhood of joint; anchylosis of hip	Sinus still discharging when patient left; had gained flesh, however.
2	M.	19	Telegraph boy	1 year	Excision	Erosion of cartilage over head of femur; acetabular disease; abscess burrowing beneath gluteal muscles	Death in three days from the opening of a slough into the sciatic artery; this, of course, being followed by profuse hæmorrhage.
3	F.	15	At home	4 years	,,	Not mentioned	Subsequently necrosed bone removed from pelvic surface of ilium.
4	F.	12	,,	10 months	,,	Erosion of cartilage over head of femur; bone soft and inflamed	Previous to excision an abscess was opened over hip; patient relieved by excision.
5	M.	12	School	3 years	,,	Head found nearly absorbed; acetabulum filled with new bone, with cloaca in centre; no sequestrum found on opening the cloaca	Death from exhaustion in a month.
6	F.	11	In service	Not known	,,	Not mentioned	When she went out she could support weight on hip and move it when in bed.
7	M.	9	School	10 months	,,	Caries of head of bone; cartilage eroded; acetabular disease	One month after excision fæcal matter appeared in the wound, but after a few days no more was seen; the left hip was the diseased one. Patient went out about one year after excision and not relieved.
8	M.	9	...	1 month	,,	Head of femur loose in abscess cavity; neck also necrosed	Went out with good movement about hip, and sinuses all healed.
9	M.	7	At home	2 years	Partial excision	Necrosis of rim of acetabulum	Relieved.
10	F.	$5\frac{3}{4}$	Child	18 months	Excision	Synovial disease of joint; cartilage undergoing destruction; bone in acetabulum bare	Death three months after operation from tubercular meningitis coming on six days before death. No post-mortem.
11	F.	5	,,	18 ,,	,,	Abscess in joint; erosion of cartilage; bare bone in acetabulum	Relieved; sinuses not healed; albuminuria.
12	M.	5	,,	4 ,,	,,	Abscess; erosion of cartilage; sequestra in acetabulum	Sent to Margate.
13	F.	4	,,	6 weeks?	,,	Necrosis in acetabulum; head secondarily affected	Sinus still discharging, but patient in no pain.
14	M.	$3\frac{1}{2}$	,,	9 months	,,	Necrosis of head of femur; acetabulum filled up	—

SPECIAL TABLE IX.—*Excision of Knee.*

No.	Sex	Age.	Occupation.	How long disease had existed	Treatment	State of joint found at operation.	Result.
1	F.	28	Single	24 years?	Excision	Abscess cavity found in outer condyle of femur; head of tibia of same side carious	Subsequently amputation on account of disease continuing in tibia.
2	M.	27	Carpenter	2 „	„	Synovial disease of joint	Cured.
3	F.	22	Dressmaker	3 „	„	Outer condyle of femur contained an old abscess cavity with some necrosed bone loose in the interior	„
4	M.	17	Clerk	12 months	„	Patella adherent to femur; synovial disease the primary cause	„ Recovery was very slow.
5	M.	17	Farm-labourer	Since 4 yrs. old?	„	Patella adherent to femur; erosion of cartilage; abscess in inner head of tibia	„
6	M.	13	At home	6 years	„	Pulpy condition of synovial membrane; cartilage eroded	„
7	M.	8	School	About 1 yr.	„	Synovial disease of joint	„ Recovery was slow.
8	M.	8	...	Not known	„	Knee fixed at right angle; wedge-shaped piece of bone removed	„
9	M.	8	School	3 years	„	Partial anchylosis, with ulceration of cartilage	„
10	F.	5	Child	About 2 yrs	„	Sequestrum in inner head of tibia	„
11	F.	4	„	1½ years	„	Thorough disorganisation; cartilage destroyed and the bones carious	Death from acute peritonitis; very suspicious of pyæmia. Peritonitis came on four days after operation. Post-mortem.—Pus in peritoneal cavity.

SPECIAL TABLE X.—*Ovariotomy.*

No.	Occupation.	Age.	Nature of tumour.	How long noticed	Treatment.	Result.	Remarks and post mortem, &c.
1	Single	69	Supposed unilocular	Not stated	Operation for ovariotomy	Death in 3 days	Operation was obliged to be abandoned after some fluid had been let out by incision into what at first was thought to be the cyst, for the reason that no actual tumour, except an enlarged uterus, could be found. Death in 3 days from peritonitis. P. M. showed that the abdominal incision had laid open the bladder, and that the tumour of uterus, which apparently projected into the cyst, but really was only making itself prominent through the posterior wall of bladder, was a large fibroid growing within uterus. Bladder had become dilated by pressure preventing its being properly emptied. This same patient had been in three times and had been tapped twice.
2	Married	59	Multilocular cyst	1½ years	Ovariotomy. Clamp used; catgut sutures; salicylic wool; carbolic-oil dressing. Operation under ether; no sickness during the operation. A 3rd of grain of morphia injected subcutaneously before commencing	Death in 2 days	Vomiting commenced the morning after operation; cold clammy feeling of skin. Temperature on an average 100° for first 24 hours. About 26 hours after operation her pulse became hardly susceptible and temperature rose to 103·3°; abdomen became distended; death. P. M.—Acute peritonitis. (There were some slight adhesions of tumour to surrounding parts.)
3	„	56	Unilocular cyst	2 years	Ovariotomy. Clamp used; catgut sutures; salicylic wool; nitrous oxide and then ether given	Cure in 35 days	There were some few adhesions to be torn through during operation. On second day after operation beef-tea enemata was given; nothing but soda-water and champagne by the mouth. Sickness began soon after operation and then continued on and off for 3 days. Morphia injections constantly given. Clamp removed on 10th day. Patient had solid food given on 13th day.
4	„	46	Not stated, but probably unilocular cyst	Not stated	Ovariotomy	Death in 2 days	Many adhesions. Peritonitis came on soon after the operation. No P. M.
5	Single	43	Unilocular cyst	12 mos.	Ovariotomy. Clamp	Cure in 50 days	Extensive adhesions; many vessels had to be tied or twisted, and omentum divided. Temperature was never much over 100°.
6	„	35	Multilocular cyst, together with a solid portion	4 years	Ovariotomy. Clamp applied	Death in 3 days	Pedicle was twisted; the tumour which sprung from right ovary had become fixed on left side. Clamp was put on very close to uterus and so dragging much on that organ. Symptoms of peritonitis in about 24 hours, and temperature rose to 104°; in fact, within a few hours of operation, the temperature, which had been rather below normal, rose rapidly up to over 103°. P.M.—Acute peritonitis.

SPECIAL TABLE XI.—*Medical Diseases developed during Surgical Treatment.*

No.	Disease.	Sex.	Age.	Admitted for—	Occurrence after admission.	Treatment, &c.	Result.	[illegible]
1	Typhus	M.	40	Hydrocele	6 days	Transferred to medical ward	...	
2	Measles	F.	2	Disease of knee	73 „	„	Death in 7 days	Broncho-pneumonia
3	„	F.	4½	„ hip	23 „	„	Returned to surgical ward	
4	„	M.	3	„ knee	174 „	„	Cured	
5	„	M.	5 wks.	Nævus	71 „	„	Returned to surgical ward	
6	„	M.	4	..	77 „	„	Cured	
7	„	M.	2¾	Fractured femur	17 „	„	„	
8	Varicella	M.	3	Phymosis	5 „	„	„	
9	„	M.	3	Disease of knee	31 „	„	„	
10	Tubercular meningitis	F.	6	„ hip	275 „	„	Death in 12 days	No post-mortem
11	Pneumonia	M.	7 wks.	Harelip	About 90 days	„	Death in 5 days	
12	„	M.	3	...	70 days	„	Cured	
13	Pneumonia	M.	4	Strangulated hernia	2 „	...	Transferred to medical ward	
14	„	M.	67	Fatty tumour	9 days after operation	...	Death in 6 days	
15	Mania	M.	48	Concussion	11 days after accident	...	Patient transferred to infirmary, where he died 18 days after the commencement of maniacal symptoms	
16	Delirium tremens	M.	63	Compound fracture of tibia and fibula	1 day	...	Death in 3 days	
17	„	M.	60	...	...	...	Cured	
18	„	M.	50	Fractured pelvis	3 days	...	„	
19	„	M.	45	„ femur	1 day	...	„	
20	„	M.	39	...	1 „	...	„	
21	Melancholia	M.	22	Strangulated hernia	5 days	...	Relieved	

SURGICAL REPORT.

1877.

By CHARLES HENRY NEWBY.

Preliminary Remarks.

There has been an increase in the number of patients treated in Surgical Wards during 1877 of 146 as compared with the number treated during 1876; this latter year had had an increase of over 100 on the year 1875. With this increase, however, there has been a somewhat larger proportional increase in the number of deaths.

Of the zymotic diseases which have occurred in the Surgical Wards measles and varicella have taken a prominent part, especially in Victoria Ward, which now for nearly two years has been scarcely ever free from one of these diseases, although it has been closed and cleaned several times. There have been only 2 cases of scarlet fever in the Surgical Wards.

Erysipelas has been very rife in the Surgical Wards, but especially in Edward and Leopold Wards, the former ward being only free for two months during the whole year.

The Pyæmia Table contains *all* cases which could possibly be included under that head, and of these, 4 cases were very probably admitted with the disease already developed; in 1 case the post-mortem showed a doubt between pyæmia and farcy, and as the history could not point out the latter it has been put under the former. The Edward Ward again takes the lead in pyæmia as it did in erysipelas, and the Elizabeth, Leopold, and Albert Wards followed closely upon it.

Why the Edward and Leopold Wards should be in such a bad state it is difficult to say, for in both of these, and especially in the former, antiseptics are used more freely than elsewhere. One cause may be suggested, that these Wards are in the Wing next to that of Infectious Diseases, and another and very probable cause was that they often contained more patients than the allotted number.

Perhaps we may be allowed to ask the 'Lancet' whether they as rigidly look after all the defects of other hospitals, and whether other hospitals equally confess to their numbers of erysipelas and pyæmia.

In the table of General Injuries, viz. Burns, it will be seen that out of 32 patients, mostly children of under 5 years, there were 19 deaths, and further, all these children had been burnt whilst left alone near a fire. Surely it is time that some punishment should be awarded to the parents who thus leave them unprotected.

In the treatment of fractures the Bavarian plaster of Paris splint has nearly entirely superseded all others.

Sayer's splint for spinal curvature has been adopted just recently, and has been a source of great comfort to the patient.

General Statement.

Number of surgical beds		220
„ of patients in hospital January 1st, 1877	197	Males 110 Females 87
„ „ admitted during the year 1877	1885	Males 1107 Females 778
Total	2082	
„ „ in hospital December 31st, 1877	191	Males 101 Females 90
„ „ treated during the year 1877	1891	

	Total.	Males.	Females.
Discharged cured	1056	630	426
„ relieved	494	302	192
„ unrelieved	40	15	25
„ some other cause	139	60	79
Died	162	109	53
	1891	1116	775

Average number of deaths 8·56 per cent.
„ „ days in hospital 35·4.

Table I.—*Abstract, showing Diseases, Injuries, &c., in Classes, according to authorised Nomenclature.*

	Total.		Ages.											Result.					Average stay in hospital in days.
	M.	F.	5	10	15	20	30	40	50	60	70	80	+	C.	R.	U.	S.	D.	
General Diseases.																			
Rachitis	1	1	1	1	...	...	...	...	...	...	...	...	...	...	2	...	...	...	105
Struma	5	...	1	...	1	1	2	...	...	...	...	...	...	...	2	...	2	1	44
Erysipelas (arising)	31	8	5	3	5	2	4	8	5	4	2	1	...	32	...	...	...	7	...
Erysipelas (admitted)	18	11	1	...	1	1	5	9	8	3	1	...	...	20	3	...	...	6	28
Pyæmia	16	6	...	1	2	4	2	8	3	2	...	...	...	...	...	...	...	22	...
Syphilis—																			
1. Primary by—																			
a. Indurated sore	1	4	...	...	...	2	3	...	...	...	...	...	...	3	1	...	1	...	32
2. Secondary by—																			
a. Condylomata	1	40	...	1	...	22	16	2	...	...	...	...	...	29	3	...	11	...	50
b. Eruptions	5	27	...	...	2	14	15	1	...	...	...	...	...	23	8	...	1	...	44
c. Ulcer	3	2	...	...	...	...	1	3	...	1	...	...	...	1	4	...	...	...	24
d. Ulceration about genitals	1	3	...	...	...	1	3	...	...	...	...	...	...	3	1	...	...	...	130
e. Ulceration of rectum	...	4	...	...	...	...	4	...	...	...	...	...	...	3	1	...	...	...	52
f. Ulceration of anus	...	1	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	27
g. Gumma of testicle	2	...	...	...	...	...	...	1	1	...	...	...	...	2	...	...	...	...	27
h. Form not noted	...	5	...	...	...	2	3	...	...	...	...	...	...	3	...	...	2	...	51
Local Diseases.																			
Tumours.																			
Sebaceous	2	1	...	...	...	...	...	2	1	...	...	...	...	3	...	...	...	...	19
Fatty	3	7	1	...	...	2	...	2	1	2	2	...	...	8	...	1	...	1	26
Glandular—																			
a. Mammary	...	3	...	...	...	...	2	1	...	...	...	...	...	3	...	...	...	...	30
b. Neck	1	1	...	1	1	...	...	...	...	...	...	...	...	2	...	...	...	...	41
Papilloma	1	1	...	...	...	...	1	...	...	1	...	...	...	1	...	...	1	...	15
Nævus	...	3	3	...	...	...	...	...	...	...	...	...	...	...	2	...	1	...	15
Cystic																			
a. Ovarian	..	11	...	...	...	...	2	1	3	5	...	...	...	...	5	...	3	3	24
b. Of breast	...	1	...	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	24
c. Of testicle	1	...	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	23
d. Of jaw	...	1	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	13
e. Over parotid gland	...	1	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	12
Exostosis	3	4	...	...	2	4	...	...	...	1	...	...	...	4	...	3	...	...	36
Fibroma	...	1	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	84
Polypus—																			
a. Nasi	2	...	...	...	...	1	...	...	1	...	...	...	...	1	1	...	...	...	24
b. Recti	...	1	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	3
Epulis—																			
a. Simplex	...	1	...	...	...	...	...	...	...	1	...	...	...	1	...	...	...	...	16
Congenital—																			
a. Hydrocele of neck	...	1	1	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	42
Ranula	...	1	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	34
Fibro-vascular	...	1	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	32
Fibro-cellular	1	...	...	...	...	...	...	...	...	...	...	1	...	...	1	...	...	...	43
Fibro-cartilaginous	...	1	...	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	7

TABLE I.—*Abstract, showing Diseases, Injuries, &c., in Classes, according to authorised Nomenclature*—continued.

	Total.		Ages											Result.					Average stay in hospital in days.
	M.	F.	5	10	15	20	30	40	50	60	70	80	+	C.	R.	U	S.	D	
TUMOURS—*continued.*																			
Osteo-enchondroma	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	14
Lupus	1	1	...	...	...	...	...	...	2	...	...	...	...	1	1	...	...	...	23
Sarcomata—																			
1. Myeloid of—																			
a. Upper jaw	...	1	...	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	11
b. Lower jaw	...	1	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	51
2. Round-celled—																			
a. Neck	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	45
b. Upper jaw	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	21
c. Lower extremity	...	2	...	...	...	1	1	...	...	...	...	...	...	2	...	...	...	...	45
3. Spindle-celled—																			
a. Neck	1	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	66
b. Labium major	...	1	...	...	...	...	...	...	...	...	1	...	...	1	...	...	...	...	50
4. Cystic—																			
a. Recurrent, of breast	...	1	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	25
Form of tumour not known—																			
a. Pharynx	2	...	...	...	...	...	2	...	...	...	...	...	...	...	2	...	...	...	58
b. Thigh	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	14
c. Foot	1	1	...	...	...	...	1	1	...	...	...	...	...	1	...	...	1	...	59
Carcinomata—																			
Epithelioma of—																			
a. Eyelid	1	...	...	...	...	...	...	...	...	1	...	...	...	1	...	...	...	...	21
b. Cheek	...	1	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	...	42
c. Lip	8	...	...	...	...	...	...	...	2	4	1	1	...	7	...	1	...	...	18
d. Of lower jaw, with cystic disease	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	106
e. Tongue	7	...	...	...	...	...	1	...	1	2	3	...	...	3	...	...	4	...	25
f. Colon	...	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	164
g. Penis	1	...	...	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	33
h. Clitoris	...	1	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	59
i. Labium major	...	2	...	...	...	...	...	...	1	1	...	...	...	2	...	...	...	...	26
Scirrhus of—																			
a. Neck	2	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...	1	1	7
b. Breast	...	35	...	...	...	...	...	11	9	8	7	...	...	23	3	4	2	3	31
c. Abdominal parietes	...	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	4
d. Rectum	...	2	...	...	...	...	...	...	...	...	2	...	...	...	2	...	...	...	19
e. Rectum and vagina	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	8
f. Recurrent scirrhus of breast	...	8	...	...	...	...	...	4	2	1	...	1	...	5	...	2	1	...	19
Recurrent encephaloid of thigh	...	1	...	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	58
Scirrhus and medullary of—																			
a. Symphisis pubes	...	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	15
NERVOUS SYSTEM.																			
Tetanus	1	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	29

TABLE I.—*Abstract, showing Diseases, Injuries, &c., in Classes, according to authorised Nomenclature*—continued.

	Total.		Ages.											Result.					Average stay in hospital in days.
	M.	F.	5	10	15	20	30	40	50	60	70	80	+	C.	R.	U.	S.	D.	
NERVOUS SYSTEM—*continued.*																			
Neuralgia	1	2	...	...	...	.	...	2	1	...	...	...	...	3	...	...	...	...	25
Muscular spasm	1	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...	5
Infantile paralysis	1	1	...	1	1	...	...	...	...	...	...	...	...	...	1	1	...	...	104
Hysteria	1	4	...	...	1	3	1	...	...	...	...	...	...	1	1	1	2	...	20
EYE AND APPENDAGES—																			
Ophthalmia	1	1	1	...	...	1	...	...	...	...	...	...	...	1	1	...	...	...	58
Ectropion	1	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	21
EAR—																			
Otorrhœa	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	...	1
CIRCULATORY SYSTEM.																			
Hæmorrhage	5	4	1	...	...	1	2	2	1	2	...	...	...	8	1	...	...	...	12
Varicose veins	3	3	...	...	...	1	2	1	2	...	...	...	...	4	2	...	...	...	32
Hæmorrhoids	5	2	...	...	...	...	...	5	2	...	...	...	...	6	1	...	...	...	22
Aneurism	2	...	...	...	...	...	...	1	1	...	...	...	...	1	1	...	...	...	24
Phlebitis	1	1	...	...	...	1	...	...	...	1	...	...	...	1	...	...	...	1	14
GLANDULAR SYSTEM.																			
Lymphoma	1	1	...	1	...	1	...	...	...	...	...	...	...	...	2	...	...	...	15
Lymphangitis	...	2	...	...	...	...	...	2	...	...	...	...	...	2	...	...	...	...	43
Lymphadenoma	2	...	...	...	2	...	...	...	...	...	...	...	...	...	1	...	...	1	26
Lymphatic abscess	3	5	3	...	...	...	4	1	...	...	...	...	...	6	2	...	...	...	26
Hypertrophy of mamma	...	1	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	13
Chronic induration of mamma	...	1	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	22
Inflammation of mamma	...	1	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	24
Abscess of mamma	...	6	...	...	...	...	4	1	1	...	...	...	...	3	3	...	...	...	28
Disease of thyroid	1	3	...	...	...	...	1	...	...	3	...	...	...	...	4	...	...	...	93
RESPIRATORY SYSTEM.																			
Chronic laryngitis	2	1	...	...	...	...	1	1	...	...	1	...	...	...	3	...	...	...	30
DIGESTIVE SYSTEM.																			
Mouth—																			
Stomatitis	...	2	2	...	...	...	...	...	...	...	...	...	...	2	...	...	...	...	50
	2	2	...	1	...	...	2	1	...	...	...	...	...	3	1	...	...	...	15
Perforation of hard palate	1	...	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	6
Œsophagus—																			
Stricture of	1	2	...	...	...	...	...	1	1	...	1	...	...	1	2	...	...	...	24
Intestine—																			
Obstruction	...	2	...	...	...	...	...	...	2	...	...	...	...	...	1	...	...	1	7
Strangulated hernia—																			
a. Inguinal	26	2	6	...	1	4	5	5	4	2	1	...	...	24	1	...	..	3	15
b. Umbilical	...	4	...	...	...	...	...	...	2	2	...	...	...	3	...	...	...	1	15
c. Femoral	7	18	1	...	...	...	...	5	7	5	5	2	...	17	1	...	...	7	17
Umbilical hernia readmitted	...	2	...	...	...	...	...	...	2	...	...	...	...	...	2	...	...	...	23
Stricture	...	6	...	...	...	...	5	1	...	...	...	...	...	...	4	...	1	1	57

TABLE I.—*Abstract, showing Diseases, Injuries, &c., in Classes according to authorised Nomenclature*—continued.

	Total.		Ages.											Result.					Average stay in hospital in days
	M.	F.	5	10	15	20	30	40	50	60	70	80	+	C.	R.	U.	S.	D.	
DIGESTIVE SYSTEM—*continued.*																			
Rectum—																			
Ulceration of	...	1	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	14
Prolapse of	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	31
Fistula—																			
Umbilical	1	...	1	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	131
In ano	17	6	...	...	...	3	7	7	3	2	1	...	...	14	4	...	5	...	32
Fissure of anus	...	1	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	57
GENITO-URINARY SYSTEM.																			
Testicle—																			
Strumous disease of	4	...	...	...	...	...	2	1	1	...	...	...	...	...	3	1	...	...	28
Orchitis	1	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	5
Epididymis—																			
Chronic epididymitis	1	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	14
Acute epididymitis	3	...	...	...	...	...	...	1	2	...	...	...	...	2	1	...	...	...	7
Abscess in	2	...	...	...	...	...	1	...	1	...	...	...	...	1	1	...	...	...	52
Cord—																			
Encysted hydrocele	1	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	13
Scrotum, &c.—																			
Hydrocele	6	...	...	1	...	...	1	2	1	1	...	...	...	6	...	...	...	...	22
Varicocele	4	...	...	...	1	1	2	...	...	...	...	...	...	3	...	1	...	...	18
Hæmatocele	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	6
Ovary—																			
Oophritis	...	1	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	8
Kidney—																			
Pyo-nephrosis	...	1	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	190
Bladder—																			
Tubercular disease of	1	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	150
Cystitis	5	1	...	...	...	1	1	2	1	1	...	...	...	...	4	...	1	1	43
Vesical irritation	1	...	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	19
Congestion of	1	1	...	...	...	...	...	1	1	...	...	...	...	1	1	...	...	...	22
Incontinence	1	...	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	7
Retention	15	...	...	...	...	...	5	7	1	2	...	...	...	9	5	...	...	1	24
Suspected calculi	2	...	2	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	52
Calculus	3	2	...	2	1	...	2	...	...	...	...	...	...	5	...	...	...	...	47
Urethra—																			
Impacted calculus	2	...	1	...	...	...	...	...	...	1	...	...	...	2	...	...	...	...	57
Extravasation of urine	3	...	1	...	...	...	...	2	...	...	...	...	...	...	...	...	...	3	27
Stricture	22	...	...	...	...	...	3	4	3	3	5	4	...	8	9	...	1	4	14
Perineal abscess	5	...	...	...	...	...	2	1	1	...	...	1	...	1	2	...	...	2	24
Urinary fistula	8	...	...	...	...	...	1	3	2	1	1	...	...	5	1	...	2	...	81
Abscess about urethra	3	...	...	...	1	...	...	1	...	1	...	...	...	1	2	...	...	...	23
Prepuce—																			
Phimosis	6	...	1	1	...	1	3	...	...	...	...	...	...	4	1	...	1	...	21
Paraphimosis	1	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	7
Vesico-vaginal fistula	...	3	...	...	...	...	3	...	...	...	...	...	...	...	...	1	2	...	28
Recto-vaginal fistula	...	2	...	...	...	...	1	1	...	...	...	...	...	...	1	...	1	...	46

TABLE I.—*Abstract, showing Diseases, Injuries, &c., in Classes, according to authorised Nomenclature*—continued.

	Total.		Ages.											Result.					Average stay in hospital in days.
	M.	F.	5	10	15	20	30	40	50	60	70	80	+	C.	R.	U.	S.	D.	
GENITO-URINARY SYSTEM—*continued.*																			
Recto-vesical fistula	1	...	...	...	...	...	...	..	...	1	...	...	...	...	1	...	...	...	84
Vesico-recto-vaginal fistula	...	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	123
GONORRHŒA AND ITS COMPLICATIONS, &c.																			
Gonorrhœa	1	16	...	...	1	11	5	...	...	...	...	...	...	13	...	...	4	...	44
Vaginal discharge	...	24	...	...	1	14	9	...	...	...	...	...	...	18	2	...	4	...	31
Labial abscess	...	5	...	...	1	...	4	...	...	...	...	...	...	4	...	...	1	...	43
Bubo	...	3	...	...	...	1	2	...	...	...	...	...	...	3	...	...	...	...	107
Warts	...	16	...	...	...	12	4	...	...	...	...	...	...	14	...	...	2	...	58
Soft sore	6	23	...	...	...	18	8	2	1	...	...	...	...	20	3	...	6	...	41
Vaginitis	...	2	...	...	...	1	1	...	...	...	...	...	...	1	1	...	...	...	50
Hypertrophy of nympha	...	1	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	16
DISEASES OF LOCOMOTORY SYSTEM.																			
Bones—																			
Periostitis of—																			
a. Tibia and fibula	4	1	1	2	...	1	1	...	...	...	...	...	...	3	2	...	...	...	73
b. Femur	1	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	22
c. Humerus	1	1	...	...	1	...	...	1	...	...	...	...	...	1	1	...	...	...	84
Inflammation of pericranium	1	...	...	...	...	...	1	...	...	...	...	...	..	1	...	...	...	...	29
Osteo-periostitis of femur and tibia	1	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	126
Acute necrosis of tibia	...	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	1	4
Necrosis of—																			
a. Frontal	1	1	...	1	1	...	...	...	...	...	...	...	...	...	2	...	...	...	16
b. Parietal	1	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	40
c. Temporal	1	...	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	40
d. Superior maxilla	...	2	...	...	...	...	1	1	...	...	...	...	...	...	1	...	1	...	27
e. Inferior maxilla	3	1	...	...	1	1	2	...	...	...	...	...	...	...	4	...	...	...	67
f. Humerus	3	...	...	2	...	1	...	...	...	...	...	...	...	...	3	...	...	...	23
g. Carpal phalanges	1	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	27
h. Sacrum	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1	26
j. Femur	15	...	1	...	1	6	1	1	2	2	1	...	...	4	7	1	1	2	39
k. Tibia	10	...	1	3	4	...	...	2	...	...	...	...	...	6	4	...	...	...	62
l. Os calcis	5	...	1	1	1	...	2	...	...	...	...	...	...	1	4	...	...	...	75
m. Metatarsal bones	3	2	...	...	...	1	1	3	...	...	...	...	...	4	1	...	...	...	97
n. Metatarsal phalanges	1	...	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	66
Joints—																			
Shoulder—																			
a. Acute synovitis	...	1	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	21
b. Spurious anchylosis	...	1	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	26
c. Chronic arthritis	1	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	65

TABLE I.—*Abstract, showing Diseases, Injuries, &c., in Classes, according to authorised Nomenclature*—continued.

	Total.		Ages.											Result.					Average stay in hospital in days.
	M.	F.	5	10	15	20	30	40	50	60	70	80	+	C.	R.	U.	S.	D.	
DISEASES OF LOCOMOTORY SYSTEM—*continued.*																			
Elbow—																			
a. Chronic synovitis	1	1	1				1								2				13
b. Caries and necrosis	2	1	1				2							3					131
c. Anchylosis	3		1					2							3				18
Wrist—																			
a. Caries	1									1					1				131
Carpus—																			
a. Caries		1						1							1				17
Sacro-iliac—																			
a. Caries and necrosis	1	1			1		1								1			1	153
Hip—																			
a. Incipient	10	8	7	5	6									1	15	1	1		38
b. Advanced	11	8	4	9	4		1			1				6	8			5	120
c. Anchylosis	1						1							1					225
d. Hysterical		2						2						1			1		15
e. Old cases readmitted	10	6	1	8	4	1		1	1					1	14			1	57
Knee—																			
a. Acute synovitis	4	9		3	1	3	4	2						12	1				46
b. Chronic synovitis	7	10			2	4	7	3			1			4	13				45
c. Incipient disease	5	5	6	1		3								2	8				36
d. Disease involving whole joint	16	6	6	6	5	3	1	1						15	4		1	2	136
e. Loose cartilages in joint	1							1							1				22
f. Loose semilunar cartilages	2								2						2				14
g. Anchylosis, partial or complete	2	5		3			4							1	4	2			74
h. Old cases readmitted	7	8	1	9	4		1							2	9	2	2		61
i. Suppuration into knee-joint		1	1											1					35
k. Hysterical		2				1	1							2					41
Ankle—																			
a. Chronic synovitis	1	2			1	1	1								3				61
b. Incipient disease	1	2	1	1				1						1	2				89
c. Disease involving whole joint	3	1	1	1			2							3	1				203
d. Old excisions readmitted	3	1			2	1		1						2			2		62
Tarsus—																			
a. Caries of	3	3		2		2	1					1		3	3				103
Metatarsus—																			
a. Caries of	1	1									1		1	1	1				91

TABLE I.—*Abstract, showing Diseases, Injuries, &c., in Classes, according to authorised Nomenclature*—continued.

	Total.		Ages.											Result.					Average stay in hospital in days.
	M.	F.	5	10	15	20	30	40	50	60	70	80	+	C.	R.	U.	S.	D.	
DISEASES OF LOCOMOTORY SYSTEM—*continued.*																			
Spine—																			
a. Caries without curvature	1	3	...	...	1	...	2	...	...	1	...	...	...	...	1	1	...	2	44
b. Curvature	7	9	3	3	4	3	1	1	...	1	...	...	...	...	12	1	2	1	27
APPENDAGES TO MUSCULAR SYSTEM—																			
a. Ganglion	1	1	...	...	1	...	...	1		...	...	...	...	...	1	...	1	...	20
b. Inflamed bursa patellæ	2	9	...	...	2	5	1	1	2	...	...	...	...	11	...	...	...	...	22
c. Enlarged bursa patellæ	...	8	...	...	...	1	4	1	1	1	...	...	...	6	1	...	1	...	18
d. Enlarged popliteal bursa	1	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	17
e. Enlarged bursa on back of carpus	1	...	...	...	...	...	...	...	...	1	...	...	...	1	...	...	...	...	10
MALFORMATION.																			
Single harelip	2	2	4	...	...	...	...	...	...	...	...	...	...	2	1	...	1	...	24
Double harelip	4	1	4	1	...	...	...	...	...	...	...	...	...	1	...	...	3	1	29
Cleft palate	4	4	2	3	...	1	2	...	...	...	...	...	...	2	3	3	...	...	34
Harelip and cleft palate	3	...	3	...	...	...	...	...	...	...	...	...	...	1	...	2	...	...	50
Imperforate rectum	2	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	10
Imperforate anus	1	...	1	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1
DEFORMITY.																			
Wry-neck	...	1	...	1	...	...	...	...	...	...	...	...	...	...	1	...	...	...	53
Webbed fingers	...	1	1	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	19
Talipes—																			
a. Varus	1	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...	22
b. Valgus	3	1	...	...	1	2	1	...	...	...	...	...	...	...	4	...	...	...	21
c. Equinus	1	1	...	1	1	...	...	...	...	...	...	...	...	2	...	...	...	...	127
d. Equino-varus	6	3	...	4	2	2	1	...	...	...	...	...	...	1	7	...	1	...	71
Of lip after injury	...	2	2	...	...	...	...	...	...	...	...	...	...	1	...	1	...	...	30
Of nose after ulceration	...	3	...	...	1	1	...	1	...	...	...	...	...	1	2	...	...	...	95
Cicatrix on face after burn	...	1	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	133
Of femur	...	1	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	80
Of great-toe	1	1	...	...	...	...	...	1	...	1	...	...	...	2	...	...	...	...	75
CELLULAR TISSUE.																			
Diffuse cellulitis	12	4	3	1	...	4	3	1	2	...	2	...	...	9	2	...	1	4	25
Abscess	43	31	8	5	7	10	20	12	7	3	1	1	...	48	21	...	2	3	48
Inflammation	5	2	...	...	...	1	4	...	1	1	...	...	...	6	1	...	...	...	34
Gangrene	4	1	...	...	...	...	1	2	...	2	...	...	...	1	...	...	1	3	39
Sinus	3	1	...	1	...	...	1	1	1	...	...	...	...	2	1	...	1	...	29
CUTANEOUS SYSTEM.																			
Erythema simplex	3	1	1	1	...	1	...	...	1	...	...	...	...	4	...	...	...	...	29

TABLE I.—*Abstract, showing Diseases, Injuries, &c., in Classes, according to authorised Nomenclature*—continued.

	Total.		Ages.											Result.					Average stay in hospital in days
	M.	F.	5	10	15	20	30	40	50	60	70	80	+	C.	R.	U.	S.	D.	
CUTANEOUS SYSTEM—*continued.*																			
Erythema nodosum		1	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	6
Eczema	2	1	...		1	..	..	...	1	1	...	...	...	2	1	...	..	..	8
Psoriasis	1	1	...	...	...	...	...	...	...	1	1	...	...	1	1	...	...	...	22
Ulcer	26	17	...	...	1	4	12	5	5	7	8	1	...	20	19	1	1	2	45
Elephantiasis of leg	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1		8
Carbuncle	4	1	...	...	...	...	...	1	1	1	2	...	...	4	1	...	...	...	37
Hypertrophy of toe-nail	...	1	...	...	..	1	..	..	...	...	...	...	...	1	...	...		..	10
In-growing toe-nail	...	4	...	...	...	1	3	..	...	...	...	..	...	2	1	...	1	...	16
*																			

* Total will be found appended to the end of the Table II, q. v.

SUMMARY OF DISEASES.

I. GENERAL DISEASES.

Rachitis.—2. R. In both cases the lower limbs were especially affected, and in one there was, in addition, an angular curvature in the lumbar region. Splints applied to the legs in both.

Struma.—5. R. 2, S. 2, D. 1. Shown by sloughing sore on hand, and caries and necrosis of phalanges in 1; by strumous keratitis and sores about jaw in 1; sores and abscesses about buttock and thigh in 1; by disease of knee, carpal joints, and foot in 1; by ulceration of lip and palate in 1. *Treatment* in 1, amputation at wrist-joint; 1 sent to Margate; 1 sent to an infirmary; 1 relieved by general treatment.

In the fatal case a groom, æt. 27, admitted with a deep ulcer involving the upper lip and hard palate which had been present about 12 months. No history of syphilis. Nature of ulcer doubtful, and the question was between rodent ulcer and struma. Patient treated with iodides, but with no good result. Besides the ulcer on lip, patient had also a swelling on the foot over the front of metatarsus—thought to be a gumma. Patient remained in a more or less chronic condition for over 3 months, when the temperature, which had been that of hectic, became somewhat suddenly raised, and remained so until death at the end of 101 days after admission. See Special Table, Pyæmia, Case No. 22.

Erysipelas (admitted).—29. C. 20, R. 3, D. 6. *Attacking* trunk in 3 cases; scalp in 2; ear in 1; face in 5; upper extremity in 9; lower extremity in 9. Special Table, Erysipelas, Table IV.

Erysipelas (arising).—39. C. 32, D. 7. *Attacking* the trunk in 5; scrotum in 1; scalp in 2; face in 8; upper extremity in 2; lower extremity in 21. Special Table, Erysipelas, Table V.

Pyœmia.—22 D. Occurring after excision of hip in 2; primary amputation in 2 for injury and 2 for disease; secondary amputation for disease in 2, after injury in 3; operation for ruptured perineum in 1; contused and lacerated wound of buttock in 1; acute necrosis of tibia in 1; cellulitis of forearm in 1; removal of sequestrum from femur in 1; caries and necrosis of sacro-iliac joint in 1; caries of sacrum in 1; disease of ear which had been followed by acute symptoms of cerebral inflammation in 1; perineal section in 1; trephining for depressed fracture of parietal bone in 1: strumous ulceration of lip in 1. Special Table, Pyæmia, Table III.

Syphilis—

Primary by—a. Indurated sore. Male, 1. Female, 4, C. 3, R. 1. S. 1. In all there was a well-marked indurated sore on the external genitals;

infection shown by condylomata about lips, and indurated glands in groin in 1; squamous eruptions in 2; roseola in 1; ulcer on palate in 1. *Treatment* by calomel vapour bath in 2; calomel and opium in 1; biniodide of potassium and mercury in 2.

Secondary.—a. Condylomata, 41. Male, 1. Female, 40. C. 27, R. 3, S. 11. About genitals in 30; genitals and anus in 9; mouth and genitals in 1; mouth in 1. Of these eruptions of psoriasis and roseola were noticed in 3; sore throat in 7; sore throat, together with eruptions either squamous or papular in 5; indurated glands in neck or groin in 2; indurated glands, together with eruptions of psoriasis or roseola, in 4; indurated glands, together with sore throat, in 3. In the other 17 nothing else was noticed during their time of stay in the hospital beyond a discharge from vagina. In 3 cases there was an eruption of scabies; in 1 there was a soft sore; and in 1 the remains of an indurated sore.

Treatment.—Hyd. Perchlor. in small doses in 4; iodides of potassium or of iron, 8; biniodide of mercury and potassium in 11; calomel and opium in 2; Hyd. c. Opio in 10; vapour bath in 2; local application only in 4. Local application of either calomel or lotio nigra was used in all the cases.

b. Eruptions.—32. Male, 5; female, 27. C. 23, R. 8, S. 1. Of psoriasis, in 15; roseola in 1; macular in 6; papular in 3; papular and squamous in 3; remains of rupial eruption in form of open sores in 4. There were noticed, besides the eruption, sore throat in 6; soft sores and glandular induration in 4; glandular induration in 3; glandular induration and sore throat in 2; remains of hard sore in 4. Of the male cases, 1 was admitted with stricture of urethra, which was treated in the usual way, and 1 had phimosis, for which he was circumcised. Of the female cases, 1 had a fistula in ano, which was divided up, and 1 had some warts removed from genitals. *Treatment :*—Biniodide of mercury and potassium in 11; hyd. c. creta in 2; hyd. c. opio in 4; calomel and opium in 1; hyd. perchlor. in 2; iodides in 10; vapour bath in 1; local application of ung. hyd. amm. in 1.

c. Ulcer.—5. Male, 3; female 2. C. 1, R. 4. *Situated* on the leg in 2; on the forearm in 1; buttock in 1; face in 1. *Treatment :* Iodide of potassium and the local application of lotio nigra.

d. Ulceration about genitals.—4. Male, 1; female, 3. In 2 cases the ulceration was extensive and troublesome to heal, involving in one case the clitoris and its neighbourhood, and being somewhat serpiginous in character; and in the other the left labium major and inner side of thigh was extensively ulcerated. Patient also had some spots of lichen over her, and had some warts, which were removed. In 1 the ulceration extended to some hæmorrhoids round anus. In 1 the ulceration was on the under surface of penis, and also in the groin. *Treated* by iodide of potassium, and locally by lotio nigra.

e. Ulceration of rectum.—4. Females. C. 3, R. 1. One case was admitted twice. Ulceration in all involved the mucous membrane just within the anal orifice, and extending up the lower third of rectum. *Treatment :* General and local; iodide of potassium and locally astringent lotions in 2; ung. hyd. in 1; ung. gallæ in 1.

f. Ulceration about anus.—1. C. No other sign of syphilis present. *Treatment :* Lotio nigra. Patient also had scabies.

g. Gumma of testicle.—2. C. No satisfactory history of syphilis in either case. In both the gumma had commenced to break down, resulting in an ulcerated sore on body of testicle. Rapid cure under the iodide of potassium.

h. Form not noted.—5. C. 3, S. 2. In 3 there were sores about genitals; in 1 about anus; and in 1 mucous patches in mouth; indurated glands in groin in 3; scabies in 1; warts in 1. *Treatment:* biniodide of mercury and potassium in 1; iodide of potassium in 2; hyd. c. opio in 1; local application of strong liq. hyd. perchlor. in 1.

a. TUMOURS.

Sebaceous.—3. C. *Situated* on scalp in 2; on outer side of knee in 1. Removal.

Fatty.—10. C. 8, U. 1, D. 1. *Situated* on back of neck, 1; back, 3; shoulder, 2; chest, 2; arm, 1; abdominal wall, 1. The tumour, in each case except one, was removed, and the exception was in a case when the tumour was very large and extended from the back, over shoulder, and half way down the arm. In one case the tumour had undergone calcareous change. In the fatal case, *a child, æt.* 4½, who was admitted with a small fatty tumour situated just above pubis, had recovered from the operation for removal of the tumour when, about one month after the operation, the child was suddenly taken with sickness, diarrhœa, and a high temperature. At same time there were symptoms of peritonitis, and in 4 days delirium, screaming, accompanied by burrowing of head in pillow, &c. No convulsions. Death on the 7th day after the setting in of symptoms. No post mortem. Probably a case of general tuberculosis.

Glandular—

a. Mammary.—3. C. Removal in all 3 cases; in 1 the patient's temperature kept up to over 101° after the incision wound had healed, and subsequently she was transferred with acute pleurisy; in 1 some suppuration occurred requiring incisions; the other case healed without complication.

b. Neck.—2. C. Both removed; in 1, just behind angle of lower jaw, and 1 projecting just behind sterno-mastoid, midway between jaw and clavicle; this patient was attacked by scarlet fever a few days after operation and transferred to Fever Ward.

Papilloma.—2. C. 1, S. 1. Situated on nympha in 1; penis in 1. Tumour removed from penis. The other patient refused operation.

Nævus.—3. R. 2, S. 1. In 1 the nævus was situated just below the angle of lower jaw; treated by passing wires through and using the galvano-cautery. 1 admitted with a large nævus situated just below the inferior angle of scapula, was sent out because of Measles occurring in the Ward. In 1 the child had nævi on upper lip, right cheek, and right lumbar region; only the nævus in loin was removed, and that in the lip was destroyed by galvano-cautery. All were subcutaneous.

Cystic—Ovarian.—11. R. 5, S. 3, D. 3. Occurred in 2 single women, and in 7 married. 2 cases were admitted twice during the year. Tapping performed in 7 cases; ovariotomy in 2; the other two were sent out to come in later on for operation (1 had already had an ovarian tumour removed).

Of the 3 fatal cases. *a.* F., *æt.* 22, single, admitted with a large unilocular cystic tumour of the right ovary; she had noticed the tumour about 14 months.

Previous to her admission she had been tapped twice, at intervals of about 8 months. Operation performed on the 28th November: numerous adhesions had to be torn through; 12 pints of ovarian fluid withdrawn from the cyst: clamp applied, and cautery used to the cut end. Soon after the operation sickness commenced, and continued at varying intervals up to the time of her death. Temperature rose to 101° the same evening after the operation, and then continued almost the whole time over 100°, but never registered more than 103·8°. Coffee-ground vomiting and hiccough commenced on the 1st December; delirium came on just before death, which occurred on the 5th day. P.M.—Acute peritonitis. The ovarian tumour weighed 7 lbs., and had only 1 cyst.

b. F., *æt.* 35, married, admitted into the Medical Ward with an ovarian cystic tumour; transferred to Surgical Ward on the day of the operation. Unilocular cystic tumour removed. Sickness during the operation, and this continued more or less all the night following the operation. Ice bags were applied to the abdomen, and kept on for 3 days, the patient being under the influence of morphia all the time. Diet for the first 24 hours was limited to about 1 oz. of fluid. On the 4th day she had an icteroid tinging of conjunctivæ, and her pulse became very feeble, being scarcely perceptible at the wrists, she complaining of a sinking feeling at the same time. Just previous to death the stomach pump was used, and about three pints of dark fluid removed; abdomen distended. Temperature, which had never been above 101·6°, was just above normal during the last 24 hours of life. No post-mortem allowed. Death on 5th day after the operation.

c. F., *æt.* 42, a patient who had been in the hospital several times, and had only recently been discharged, was re-admitted on acount of acute pain in abdomen, and a rather rapid increase of fluid in an ovarian cyst, which cyst had been tapped about 5 times during a period of 10 months. Respiration impeded. Tumour tapped, and 6 pints of fluid drawn off. Patient gradually sank and died, having become much exhausted. P.M.—A large ovarian tumour weighing 28 lbs., of compound cystic character, with much solid substance. Old adhesions in pleuræ. No peritonitis.

During the year 1877 only 3 cases of ovariotomy occurred in the hospital, out of which 2 were fatal as above seen, but the other recovered, not, however, leaving the hospital until the beginning of 1878.

It would probably more conduce to the ultimate recovery of the patients who are subjected to the operation for removal of an ovarian tumour if that operation could be done more rapidly than is usually the case in General Hospitals.

b. Of breast.—1. C. The cyst was tapped, and some semi-sanguineous fluid let out. Injected with iodine.

c. Of testicle.—1. C. Cystic tumour of right testicle. Castration.

d. Of jaw.—1. C. A small tumour involving the greater part of right superior maxilla. Cyst laid open, and a piece of stump of tooth removed.

e. Over parotid.—1. C. About the size of a small hazel nut over the parotid gland. Removed.

Exostosis.—7. *Situated* on occipital bone in 1; frontal in 1; inner condyle of femur in 1; inner head of tibia in 1; ungual phalanx of great toe in 3. *Removal* in the 3 cases of ungual phalanx exostosis, but the others were not interfered with.

Fibroma.—1. Tumour situated in the neck; too large for removal. It was thought to be connected with the thyroid gland, but further examination showed it to be separate from it.

Polypus—

a. Nasi.—2. Naso-pharyngeal in 1; filling up both anterior nares, and causing some considerable deformity of nose in 1. Removal in the first case; the second case was attacked by erysipelas of face, and went out refusing any more treatment. In both cases fibro-mucous polypi. For Erysipelas see Table No. V, Case No. 29.

b. Recti.—1. C. Simple mucous polypus. Removed.

Epulis—

a. Simplex.—1. C. Of lower jaw. Removed with 4 stumps and 2 teeth.

Congenital hydrocele of neck.—1. R. A tumour situated on right side of neck, hanging loosely downwards; fluctuating; present since birth. Tapped 3 times, and injected twice with tincture of iodine, with but slight relief.

Ranula.—1. C. This case was fully described in the Hospital Report for 1876 (see Surgical Report). Patient readmitted with the tumour below the jaw, which had filled again. The cyst was completely removed by a median incision between symphysis menti and the hyoid bone; the tumour was attached to hyoid bone.

Fibro-vascular.—1. C. Tumour situated on the inner side of thigh, just above the knee, about the size of an orange, of soft semi-elastic consistence, and upon firm pressure was made much smaller. Removed. Structure partly nævoid, and partly fibrous.

Fibro-cellular. — 1. R. A nodulated tumour situated in the left side of scrotum, and extending into the groin; skin not involved; considered to be fibro-cellular in structure. Patent was suffering from orchitis of the left testicle. The orchitis alone was treated.

Fibro-cartilaginous.—1. C. Growing from lobule of ear. Removed.

Osteo-enchondroma.—1. S. Tumour involving the upper part of femur, and projecting below the gluteal fold; patient able to get about with his work; the growth was only accidentally noticed by himself 6 years before admission; the tumour has grown slowly, and during last 3 months only has he suffered any pain, and this is but slight. Patient to come in again if necessary.

Lupus.—2. C. 1, R. 1. In 1 involving the nose and cheeks on either side. This case was attacked by erysipelas soon after admission, and was treated by iodide of potassium internally and lotio plumbi. In the other the angle of the mouth on the left side was affected. Treated by Potassii Iodidi and Lotio Sodæ Chlor. For erysipelas See special Table No. V., Case No. 23.

b. SARCOMATA.

1. *Myeloid of*—

a. Upper jaw.—1. The tumour in this case was hardly perceptible externally; had been growing 2 years. Removed, and patient subsequently had a palate fitted by the dentist. Result hardly any deformity, and no recurrence when seen 6 months after operation.

b. Lower jaw.—1. Occupying the ascending ramus and angle of jaw; induration of submaxillary gland. Removal with the piece of jaw to which it was attached. Morphia, gr. ¼, had been given just previous to the administration of chloroform; child nearly died of opium poisoning, the symptoms coming on within half an hour after the operation; artificial respiration had to be performed for some time. Went out with incision wound healed, and no sign of recurrence. Tumour had only been noticed 2 months.

2. *Round-celled*—

a. Neck.—1. M., *æt.* 31, admitted with an enormous tumour growing from the left side of neck; tumour had been noticed 8 months, and during the last 4 months it had grown very rapidly; constant recurrence of hæmorrhage from the tumour which had involved the skin in a great portion of its extent. During his stay in the hospital of about 6 weeks the mass increased greatly, and he lost flesh and strength. Not possible to be removed. Hæmorrhage arrested by local application of strong tinct. ferri.

b. Upper jaw.—1. D. Tumour involved the whole of the right upper jaw, encroaching in every direction, closing the right eye entirely, and pushing the nose towards the left. Tumour first noticed 5 months before admission. Operation was proposed at first, but he was attacked by a sudden rise of temperature, followed by cellular inflamation of neck and abscess. Occasional attacks of hæmorrhage. P.M.—No secondary deposit.

c. Lower extremity.—2. C. Involving the lower epiphysis of femur in 1, which was treated by amputation through the upper third of thigh (this patient left Hospital and died within 6 months after the operation on account of recurrence of the growth in the stump); in the other the upper part of fibula was affected, and the limb was removed at lower third of thigh.

3. *Spindle-celled*—

a. Neck.—1. M., *æt* 30, admitted with small tumour projecting from behind the lower fourth of sterno-mastoid muscle on the left side; at first it was considered that it was either a glandular tumour or a fibroma; until its removal it was not suspected to be a sarcoma at all. The removal was difficult owing to its proximity to the large vessels and pleura; noticed 4 years.

b. Labium major.—1. Had been growing 4 months. Removed by galvano cautery.

4. *Cystic* (*Recurrent*)—

a. Of breast.—Tumour in breast had been removed 2 years before admission; recurrence noticed only during the last 2 months.

5. *Form of tumour not noted or not known.*—

a. Pharynx.—2. Same case readmitted. M., æt. 26, admitted with a tumour growing from the base of skull at root of pharynx, and extending downwards to beyond the level of the mouth, infiltrating and at the same time pressing forwards and inwards the pharyngeal wall and palate. Patient suffered from frequent attacks of syncode, and when readmitted 3 months after he first left the hospital he had lost the sight of the left eye, and could but imperfectly see with the right one; his hearing had also become imperfect. *Treatment.*—On his first admission the soft palate was divided in median line to relieve the tension, and his symptoms were much relieved by the operation. It was intended to have attempted removal of the tumour, but on dividing palate it was then seen how deep and difficult the attachments were. The patient was alive in December, 1877, and his symptoms had not changed much. Nature of tumour supposed to be sarcoma; an exploratory puncture did not reveal much. At the commencement the symptoms were those of difficulty of breathing, and a constant fear of being choked. About 12 months ill previous to admission.

b. Thigh. — 1. M., *æt.* 33, admitted with a tumour growing from the front of thigh; an incision made into it because it was thought to be a large abscess; considerable hæmorrhage followed the puncture; soon after the mass commenced to slough; other incisions made; death in 14 days, the temperature having been high and pyæmia suspected about 2 days before. P.M.—Tumour quite decomposed and not able to be examined; apparently had been growing from the periosteum of the upper part of femur; the viscera were decomposed.

c. Foot.—2. C. 1, S. 1. Both on the dorsum. In 1 the foot together with tumour were removed by a Syme; was a sarcoma, and growing from between the first and second metatarsal bones, and extending into the sole of foot.

The other case was also a sarcoma, and apparently growing from the cuboid. This patient had had a tumour removed from the foot in this position about 16 years previously. Glands in groin are affected. Patient went out, intending to come in again, but he never did.

c. CARCINOMATA.

Epithelioma of—

a. Eyelid.—1. C. Involving the outer half of the lower eyelid and part of cheek below it, causing eversion of the lid. Patient had had a small hard mass on the lid for 25 years, and after the application of caustic to destroy it, about 5 years previous to admission, the mass commenced growing again; great increase in the last 12 months. Removal of the growth and replacing by a flap of skin from cheek the portion of eyelid which was destroyed.

b. Cheek.—1. C. Growth started from a congenital nævus about 2 years before admission; removal. Attacked by erysipelas twice during cure. See Sp. Table V.

c. Lip.—C. 7, U. 1. Removal in all. In 1 case the growth recurred within 14 days. Operation performed by the ordinary V-shaped incisions in 5; by oval incisions along edge of lip and bringing the edges of mucous membrane and skin together in 1, because the growth was quite superficial on the free portion of lip; in 1 case, where the growth involved the whole length of lower lip, the operation was more extensive, and was done by making incisions outwards for a short distance from the angles of mouth and then joining these two by a semi-lunar incision carried below the growth; having done this, the growth being removed, a V-shaped piece of skin was taken out of the centre of the flap that remained, and the soft parts being raised from the lower alveolus, the whole flap was raised up and harelip pins fixed to the angles of upper lip so as to form the new oral aperture. This was done with a good result. The lower lip was affected in all the cases, and in 3 of these the glands below the jaw were indurated.

d. Lower jaw.—1. D. "Two years before admission the patient had had an epithelioma removed from the lower lip; fifteen months after this he noticed a small, hard gland under his jaw on the left side, and this lump he said was loose and not attached to the jaw; he soon after received a blow on the jaw at this spot, and this was followed by a more rapid increase in the size of the tumour." When admitted he had a tumour, which evidently involved the lower jaw at the angle, and about the size of a small walnut; skin over it adherent and discoloured; a feeling of fluctuation on deep and firm pressure. Tumour was tapped twice, and some dark viscid fluid evacuated and subsequently cyst laid open. In a fortnight's time the interior of cyst had taken on a distinctly malignant aspect; the granulations were large and constantly causing trouble from profuse hæmorrhages. Patient lingered on for about 2 months, the growth in the meanwhile increasing rapidly and extensively.

It was a difficulty in this case to trace the connection between the enlarged gland below the jaw and the disease of the jaw. Probably, however, the gland was the primary affection following upon or possibly left behind after the removal of the epithelioma of the lip, and the glandular enlargement increasing and subsequently becoming fixed to the lower jaw, by so doing induced the formation of a cyst within that structure. This cyst being laid open the growth would naturally tend to a rapid increase. Before death there was some considerable cellular inflammation about face. P.M.—No deposits elsewhere.

e. Tongue.—7. C. 3, S. 4. Removal of portions of tongue in 3 cases: by galvano-cautery in 2 through the mouth; in the third case, as the growth was more extensive, a median incision was first carried through the lower lip and chin, and the lower jaw was divided in median line; then tongue drawn out and the galvano-cautery wire écraseur passed round the whole of right mass of tongue by means of curved needles; removal of the right half of tongue as far back as the fauces; complete recovery. Patient when seen in January, 1878, about three months after operation, showed no signs of recurrence.

In the other 4 cases no operation was performed. Out of these, 1 was treated by application of a strong solution of nitrate of silver, and case to be watched; the ulcer on tongue was excavated and indurated; 3 were cases too advanced for operative interference.

f. Colon.—1. F., *æt.* 42, admitted with an abscess in left iliac region, which had been discharging 3 months; fæces come through the wound; nearly 4 months after admission it was noted that the granulations round the edges of abscess opening were probably epitheliomatous in character. Patient was excessively pale and unhealthy looking. She lingered on for over 5 months, and died from exhaustion due to the constant discharge, &c. P.M.—Columnar epithelioma of descending colon; small secondary growths in pleuræ.

g. Penis.—1. C. Growing 16 months altogether. Previous to admission, however, the growth had been removed once by circumcision, with recurrence 3 months after, epithelioma involving the second time the glans penis. Removal of greater part of penis and stitching the urethra, which had been divided farther forwards than corpus cavernosum to the edge of wound. Catheter tied in. Good result.

h. Clitoris.—1. C. Removal with some of the tissues round it by means of the knife; hæmorrhage arrested by ligature and perchloride of iron.

i. Labium major.—2. C. Removal by oval incisions and bringing edges of mucous membrane and skin together in 1; by single incision in 1.

Scirrhus of—

a. Neck.—2. S. 1, D. 1. In 1 the tumour projected from beneath the lower half of sterno-mastoid muscle on the left side, too deeply connected for interference; in 1, which ended fatally within a week of admission, the tumour was situated just below the angle of lower jaw. Patient was almost dying on admis sion. P.M.—Secondary deposits scattered through both lungs and on the under-surface of the diaphragm.

b. Breast.—35. C. 23, R. 3, U. 4, S. 2, D. 3. The oldest case was a woman, æt. 70, and the youngest was one æt. 31; there were 11 single women; 20 married women who had had children; 4 married and without children. In only 2 cases was there any history of tumour in family, and in both of these the mothers had died, the one of cancer of "throat," and the other of cancer of the breast. The length of time that the patient had herself noticed the presence of the tumour in the breast was in 12 cases under 6 months, 6 under 12 months, 6 under 2 years, 4 under 3 years, 2 under 6 years, and in 3 the time was unknown. Glands in axilla complicated in 11 cases. Removal of breast in 28 cases, the glands being also removed; in 2 cases the operation not advisable, as the skin at some distance from and separate from breast contained multiple deposits of cancer; in 2 the operation was refused by the patient; in the remaining 3 cases the patients were subsequently readmitted for operation, and 1 of these when admitted for the first time was apparently only suffering from an acute inflammation of the breast ending in abscess, for it was only when all inflammatory induration had gone down that the cancerous tumour was detected, and she was sent out to be watched for a short time before anything further was done. Of the 3 fatal cases, 1, a highly nervous patient, died from the shock of the operation within 5 days; 1 died in 4 days after the operation from acute pleurisy, and showed at post-mortem advanced granular disease of kidney; 1, who was attacked by erysipelas 5 days after the operation, died in 5 days; in 1 other case the patient was attacked by erysipelas, but she did well. (See Special Tables, Erysipelas cases, Nos. 30 and 34; for these last 2 patients, Table No. V.)

c. Abdominal parietes.—1. F., æt. 30, married, admitted with a small, hard, nodulated tumour, situated at lower part of anterior wall of abdomen, skin over it discoloured and adherent. Patient to come in again. Tumour noticed 3 years ago; very slow in growth.

d. Rectum.—2. R. Disease noticed by patient for 6 months in 1, and 14 months in the other; ages 64 and 65. No operative interference proposed. There was no actual obstruction to bowels.

e. Rectum, vagina, and uterus.—1. Died 8 days after admission into Surgical Ward. P.M.—Extensive carcinomatous disease involving rectum, vagina, and uterus; no secondary deposits elsewhere; infarcts in spleen, kidneys, and lungs; disease apparently had been in existence about 3 years.

f. Recurrent scirrhus of breast.—8. C. 5, U. 2, S. 1. Oldest patient, 71; youngest 35; occurred in 1 single woman, and 7 married. Recurrence occurred within three months in 1; within 12 months but over 6 months in 5. In 1 a tumour had been removed from breast six years previously, and the scirrhus nodule had been noticed only one year. It is a question whether the previous tumour was a carcinoma; the breast, at any rate, was not removed with the previous tumour; in 1 the time is not mentioned. The recurrence appeared in the original cicatrix in 3; in glands in axilla in 1; in cicatrix and axillary glands both, in 2; in skin round or near cicatrix in 2. Removal in 5 cases; in 2 the state of parts were unfit for operation; in 1 the patient refused operative interference.

Scirrhus and medullary cancer of pubes.—1. D. Female, æt. 24, admitted into the hospital in a very typhoid condition, and with a temperature above normal. Patient had not been feeling well for 4 months, and during the last 5 weeks she had been obliged to take to her bed, owing to excessive weakness, pain, and lassitude. She had painful tumours projecting from front of upper third of sternum, from front of symphysis pubes, and from ischial tuberosity. These were suspected to be syphilitic nodes. 3 days after admission she became semiconscious, passing everything in bed. Temperature rose to over 101°, and continued more or less above that point until death. Tumours were noticed to be increasing in size, and the tumour over symphysis was punctured, as it was thought to be fluctuating: nothing, however, was evacuated. Small doses of Potassii Iodidi had been ordered soon after admission, but with no change in condition of the tumours. During the last few days of life she was delirious, and not conscious of anything that was going on around her. P.M.—A large mass of cancerous deposit involving tke symphysis pubes and the bone about the joint; section showed it to be scirrhus in some portions, and medullary in others. Deposits in all the viscera of abdomen and chest; in the brain, and in the anterior mediastinum; the tumour in front of sternum also involved. Primary growth probably in symphysis. The ischial tumour not examined. Death occurred 15 days after admission.

Recurrent encephaloid in thigh.—1. C. Original tumour removed 17 months before admission from inner side of left thigh. Within 3 months the growth reappeared at about the same spot, and she has been for the last six months treated at some institution by applying caustic to the mass. On admission a small fungating mass, which bled easily on being touched; moveable upon the parts beneath. Removal by oval incisions. Went out with wound quite healed.

III. DISEASES OF NERVOUS SYSTEM.

Tetanus.—1. C. Male; æt. 27. Admitted with symptoms of tetanus on April 23rd. On the 31st March he fell against a post, causing a lacerated wound of left ear, and on the 5th of April he felt that the lower jaw had become fixed, so that he was unable to open his mouth, and gradually this spasmodic closure of jaw increased in intensity. On the 12th he complained of pain and stiffness in the muscles of back and throat. When admitted his mouth was closed so that the finger could not be inserted between the jaws. Mastoid muscles stiff and hard, as also the abdominal muscles. During the 3 weeks had had little or no food, and so was much exhausted. Hot vapour baths to be given three times a day, and a belladonna poultice applied to ear. Almost immediately after the commencement of the baths there was a visible improvement, and whilst in the bath he could open his mouth. 5 days after admission the baths were used twice daily. Muscles of abdominal wall still contracted, and also slight left facial paralysis noticed on the 20th. When patient went out on the 23rd of May he still had stiffness in lower jaw, but was not in any pain. He had never had any convulsions. For a full account see the 'British Medical Journal' for October 20th, 1877.

Neuralgia.—3. In 2, cases of stump after amputation, 1 being caused by a small fibrous nodule at the cut end of posterior tibial nerve, and in the other, cause doubtful. In the third case the pain ran along course of anterior crural nerve. *Treatment*: nodule removed, and the nerve stretched in 1. Incision over painful spot at end of stump in 1 relieved the pain; iodides and salines cured the other.

Muscular spasm.—1. R. Involving flexors of foot. Faradisation.

Infantile paralysis.—2. R. 1, U. 1. In 1, the tendons of gracilis and biceps subcutaneously divided in order to straighten the knee.

Hysteria.—Male, 1; female, 4. C. 1, R. 1, U. 1, S. 2. Shown in 1 by closure of jaws; 1, loss of power of motion in lower limbs; 1, incontinence of urine; 1, torticollis. *Treatment*: under chloroform, mouth opened in 1; transferred to Medical Ward in 2; nervine tonics in 1; none adopted in 1.

IV. DISEASES OF EYE.

Ophthalmia.—2. Strumous in 1; gonorrhœal in 1. Treatment in the case of strumous ophthalmia by Ung. Hyd. Ox. Flav. applied to eyelids and tonics; in the other, by a lotion of nitrate of silver. Result: the strumous case cured, but in the other the cornea sloughed in part, leaving nebulæ.

Ectropion.—1. C. Following gunshot wound of face. Plastic operation bringing the skin from outer part of cheek. Very good result. Patient inclined to insanity.

V. DISEASES OF EAR.

Otorrhœa.—1. D. See Special Table, Pyæmia, Case No. 18, Table I.

VI. VASCULAR SYSTEM.

Hæmorrhage.—9. C. 8, R. 1. From varicose vein in 4; ulcer in 2; epistaxis in 1; after division for fistula in ano in 1; after a wound in palm in 1. Treated by pad, and bandage used in 8 cases. The epistaxis was arrested by doses of the liquid extract of ergot and the perchloride of iron. It occurred in a male, æt. 18, who suffered from the hæmorrhagic diathesis. This case has been fully described by Mr. Mac Cormac in the St. Thomas' Hospital Reports for 1875: see article headed Bleeders.

Varicose veins.—6. C. 4, R. 2. Involving in 4 cases the saphena major vein, and in 2 the saphena minor vein. Treatment by pins and subcutaneous section of veins in 5; by elastic stocking in 1.

Hæmorrhoids.—7. C. 6, R. 1. Internal in 4; external in 2; external and internal in 1. Treated by removal in 5, by clamp and cautery; 1, by ligature; 1, by nitric acid.

Aneurism.—2. C. 1, R. 1. One *a male, æt.* 15. Suspected to have a commencing aneurism in the first part of subclavian. He suffered a great deal of pain running round the shoulder and down the arm. No tumour, however, could be felt, and there was no difference in the two pulses at the wrists, although the sphygmographic tendency was slightly altered on the two sides. Patient much relieved by rest and bromide of potassium. He was by trade a shoemaker, and complained of the constant strain upon the arms. The other, a male, æt. 31, admitted with a small pulsating tumour in the popliteal space of right limb. He had noticed it about two months before admission; right leg had become œdematous and swollen about a week. Treatment: Esmarch's bandage for 65 minutes, followed by tourniquet for 3 hours and 20 minutes; pulsation, however, was still felt in the ham and digital pressure over femoral was then had recourse to, and at the end of 9 hours and 20 minutes there was no pulsation; pressure continued for two hours more; recurrence of pulsation in 24 hours; reapplication of Esmarch's bandage on the fourth day, and cure in 5 hours. See the 'British Medical Journal,' October 20th, 1877.

Phlebitis.—2. C. 1, D. 1. In the fatal case death occurred in 15 days. Renal disease ?; uræmic dyspnœa. P.M.—Embolism of popliteal, renal, and splenic arteries; endocarditis of mitral valve; œdema of lungs. No actual disease of kidney.

VII. GLANDULAR SYSTEM.

Lymphoma.—M. R. Glands in neck enlarged in both; in one ending in abscess; the other to come in again.

Lymphangitis.—2. C. In both the inflammation commenced in the finger, but not known whether any injury had been the original cause. Incisions along arm and forearm.

Lymphadenoma.—2. R. 1, D. 1. The fatal case occurred in a boy, æt. 12, who was admitted with a tumour projecting into the rectum at its lower end, and apparently growing from the sacrum, but this turned out to be not quite correct. All round the anus, except anteriorly, the subcutaneous tissue was exceedingly indurated, and the skin over the induration was ecchymosed, but not apparently involved in the growth. It seems that 3 weeks before admission he had received a kick in the anal region from his brother. Patient very anæmic, and suffering from much pain, especially when any examination was made. 24 days after admission it was noticed that he had lost power in his lower limbs; he could not stand; this probably from pressure by the tumour upon the nerves in pelvis; subconjunctival hæmorrhage noticed also. Two days later a large patch of subcutaneous hæmorrhage appeared on outer side of left thigh, and 3 days after this there were numerous patches of hæmorrhage of similar character scattered over left lower limb and left forearm. On the abdominal wall, also, some small hard masses about size of two peas were noticed; question whether these are hæmorrhages or patches of new growth, or blocked lymphatics. Most probably they are local hæmorrhages, as in the ecchymosis on thigh similar masses are felt. At this time the patient was seized with sudden deafness in left ear. The next day, namely, 6 days after hæmorrhage first appeared, transfusion was had recourse to, Dr. Roussel performing operation, and taking blood from an arm of a Medical Student. For an hour after the operation he complained of cold, and soon after he passed a motion involuntarily; no blood in these; this followed by delirium, and the passage of 6 ounces of urine filled with blood (not smoky). Respirations rapid, and temperature 105·4°. During the 24 hours after the operation he passed in all 60 ounces of bloody urine, the last 20 ounces being much clearer; also he had 2 rigors, but the temperature was not always registered; once it was 103·2°. Pulse 140; respirations 40. The next day he remained much about the same, viz. semiconscious, and occasionally shrieking out. This state continued until his death, which took place 3 days after the transfusion. The diagnosis before death was that of a rapidly growing sarcoma.

P.M.—Tumour behind rectum connected with coccyx; secondary growths in spinal canal and in heart wall. Ecchymosis in subcutaneous tissue, retina, brain Abscess in right tonsil. Tumour examined, and found to be a lymphadenoma In the other case also, *a boy æt.* 12, the growth involved the glandular tissue in neck and spleen. Very anæmic. Treated with relief with the Syrup. Ferri Iodidi. Patient suffered from frequent attacks of epistaxis. His temperature was that of hectic for some weeks during stay in hospital.

Lymphatic abscess.—8. C. 6, R. 2. *Cause:* sore on heel, 2; injury to foot, 1; sore on toe, 1; strumous in 1. *Situation:* popliteal space in 3; groin in 4; neck in 1, *Treatment* by local application, &c.

Hypertrophy of mamma.—1. R. Marginal hypertrophy with irritable condition of mamma. *Treatment:* bromide of potassium and iron; and locally, belladonna.

Chronic induration of mamma.—1. Of 3 months' duration, possibly caused by manipulation. *Treatment:* leeches, Syr. Ferri Iodidi l. d.

Inflammation of mamma.—1. C. Diffuse; Lotio Plumbi dressing.

Abscess of mamma.—6. C. 3, R. 3. Acute in 5; chronic in 1. *Treatment:* incisions, &c. In the case of chronic abscess some sinuses were slit up.

Disease of thyroid.—4. R. Accompanied by prominence of eyeballs and cardiac hypertrophy and palpitation in 1, the glandular enlargement being but slight; in 1 other there was only simple enlargement of the gland; in 2 cystic disease, of which 1 was of a very advanced stage, and treated by tapping the cysts and injecting perchloride of iron; this treatment was followed by some considerable constitutional disturbance; subsequently a seton was passed through and left in for some months, resulting in a diminution in size; later electrolysis. The other case of no consequence, and tumour of no inconvenience to patient.

VIII.—RESPIRATORY SYSTEM.

Laryngitis.—3. R. 3. In 2 the form was laryngeal phthisis, and in 1 due to polypoid growths on vocal cords. *Treatment:* in 1 tracheotomy performed on account of polypoid growths on the vocal cords causing severe dyspnœa. General treatment: iodides. When he left the growths had become flattened. Probably syphilitic; tracheal opening was still open when he left. In the other 2 cases relief afforded by tonics, &c.

IX.—DISEASES OF DIGESTIVE SYSTEM.

Stomatitis.—2. The same child admitted twice with extensive ulceration of mucous membrane of mouth. Treated with Potassæ Chloratis and iron.

Tonsillitis.—4. Chronic in 2, in whom the tonsils were partially removed; acute and ending in suppuration in 2; incisions.

Perforation of hard palate.—1. M., æt. 10, with small perforation in hard palate, from which bone had come away, due probably to syphilis. To come in again.

Stricture of œsophagus.—3. In 2 cases suspected to be due to malignant disease; in 1 spasmodic, and probably hysterical. All relieved by passing bougie.

Intestinal obstruction.—2. Only partial in 1 case, which was transferred to the Obstetric Ward for uterine displacement, this latter being the cause of the difficulty with the bowels. The fatal case, *a female, æt.* 42, whose bowels had been obstructed for 7 days before admission, the symptoms coming on suddenly and accompanied by acute pain in lumbar and iliac regions (left); her bowels had been open freely the day before the sudden stoppage; abdomen distended and patient had symptoms of peritonitis. No special treatment adopted beyond that of allaying pain by morphia injections. Death in 5 days. P.M.—Fœtus of 3½ months in uterus and decomposed; left ovarian cyst pressing upon sigmoid flexure of colon and completely obstructing flow of fæces; cyst contained blood recently shed; slight peritonitis.

Hernia, strangulated—

Inguinal.—28. C. 24, R. 1, D. 3. Of these, 1 admitted twice in same year. (See Special Table, Hernia, Table No. 1.)

Umbilical.—4. C. 3, D. 1. (See Sp. Table, Hernia, Table No. 1.)

Femoral.—25. C. 17, R. 1, D. 7. Of these, 7 were males, and 2 were admitted twice during the year with symptoms of strangulation, and 1 only of these last two requiring operation once. (See Sp. Table, Hernia, No. 1.)

Umbilical hernia.—Readmissions 2. 1 to have truss altered; she had been operated upon in 1876. The other readmitted a few days after leaving hospital on account of pain in abdomen and difficulty with bowels; she had just recovered from a successful operation for strangulated hernia. (See Sp. Table, Hernia,)

Stricture of rectum.—6. R. 4, S. 1, D. 1. In all probably the cause was syphilis, but only 1 case could be said to be distinctly so. Annular stricture in all, and involving lower third of gut. In 2 the local disease treated by dilatation with a flexible india-rubber tube, which was kept in continuously; in the others the bougie used, except in 2, where nothing special was adopted. In the fatal case an india-rubber tube had been introduced through the stricture and kept in: 3 days after the dilatation and introduction of the tube she began to complain of pain in left iliac region and was attacked by sickness; the next day had a rigor with temp. of 102°. The night previous to rigor the temp. was registered 105°; pain in left iliac region continued, as also did the sickness. The day before death she complained of pain in the region of liver; altogether 3 rigors. Died 7 days after the introduction of the tube. Was this pyæmia? No post mortem allowed. Constitutional treatment in 2 cases was Pot. Iodidi.

Ulceration of rectum.—1. R. F., æt. 26, admitted complaining of copious discharge from rectum of pus and mucus with constant tenesmus. Strumous ulceration and tuberculated condition of lower part of rectum. Treated by iodides with iron, and morphia to relieve pain.

Prolapsus recti.—1. Cautery used in lines to mucous membrane. Went out unrelieved; refused further treatment.

Umbilical fistula.—1. Congenital; relieved. Transferred for Measles.

Fistula in ano.—23. C. 14, R. 4, S. 5. Operation in 19 cases; 3 refused treatment; 1 phthisical; erysipelas in 1 (see Table No. V, Case No. 24).

Fissure of anus.—1. Division of sphincter in part.

X.—GENITO-URINARY SYSTEM.

Testicle—

Strumous.—4. R. 3, U. 1. Abscess in 3; ulceration 1. Treated by tonics and local applications; incision into abscess in 1.

Orchitis.—1. C. Acute; denied gonorrhœa. Treated by antimony in $\frac{1}{6}$-gr. doses and ice.

Epididymis—

Chronic epididymitis.—1. R. Both sides affected. Treatment: iodides.

Acute epididymitis.—3. C. 3, R. 1. Gonorrhœa which had ceased suddenly in 2 cases; attributed to passing a catheter for stricture in 1; antimony in $\frac{1}{6}$-gr. doses given in 2 cases, together with purgatives; purgatives alone in 1; subsequently strapping in each case.

Abscess in epididymis.—2. C. 1, R. 1. A complication of stricture of urethra in 1. Incision in both cases.

Cord—

Encysted hydrocele.—1. C. In upper part of epididymis; cyst laid open; spermatozoa found in the fluid contents. Orchitis came on as a complication; this treated by puncture.

Scrotum, &c.—

Hydrocele.—6. C. 6. Of these, 5 were tapped and tinct. iodine injected (2 cases requiring a second tapping). In the other the patient had had typhus, and scrotum became inflamed, requiring incisions opening sac of hydrocele.

Varicocele.—4. C. 3, U. 1. 1 case readmitted for operation. Treated successfully by operation in 3.

Hæmatocele.—1. Came on suddenly whilst lifting a heavy weight. Ice applied.

Ovary—

Oophritis.—1. C. Left ovary; hot fomentations and dry cupping.

Kidney—

Pyo-nephrosis.—1. R. F., æt. 19, admitted with bladder symptoms; passing pus and mucus, and this accompanied by pain and a constant desire to micturate;

subsequently a tumour noticed in left hypochondriac and iliac regions; this believed to be connected with the left kidney; the tumour became very painful, and about 2 months after it had been first noticed the mass had so much increased in size that it could be seen as a prominence in the abdominal wall, and at one point fluctuated; an aspirator used and about 6 oz. of pus let out; purulent discharge in urine lessened. A few weeks later the tumour was again tapped and a drainage-tube left in; free discharge of pus continued for some considerable time. She was sent to the sea-side, the tube being still in, and pus flowing; has since been admitted again into hospital, and is still under treatment (January, 1878). Her general health has improved, and she has gained flesh slightly, but local symptoms remain the same; also the right kidney has become enlarged.

Tubercular disease of bladder.—1. R. Patient phthisical. *Treatment:* bromide of potassium, morphia, and camphor, with much relief.

Cystitis.—6. C. 4, R. 1, D. 1. In 3 calculus suspected; 1 refused to be examined; in 1, a female, granulations on floor of urethra caused all the symptoms; treated by cautery. In the fatal case, due to uræmia, post mortem showed advanced suppurative pyelitis and nephritis, the right kidney being more extensively diseased than the left; recent pericarditis and pleurisy of left side. No special treatment in the other case beyond that which is usually employed.

Vesical irritation.—1. R. Sent in as a case of calculus vesicæ; pain in passing water. No stone detected. Treated by nitric acid and gentian.

Congestion of.—2. C. Admitted on account of passing blood. Treatment: acids and morphia.

Incontinence.—1. C. By removing him from his bed once or twice during the night.

Retention.—15. C. 9, R. 5, D. 1. Fatal case, M., æt. 53, admitted in a very typhoid condition, and with retention of 17 hours' duration; relieved by hot bath; died in 8 days. P.M.—Lithic-acid calculus in penile portion of urethra; false passages; surgical kidneys. *Causes:* stricture of urethra in 11 cases, of which 2 were traumatic and 9 followed upon gonorrhœa some years previously; 1 occurred during an attack of gonorrhœa on account of having become drunk; in 3 no cause given. *Treatment:* the retention was relieved by hot bath only in 9 cases; by catheter in 5; by aspirator used above the pubes in 1; the stricture subsequently treated by catheter in 10. The case in which aspirator was used required puncture into bladder per rectum 2 days after admission. Of the 15 cases, 2 were admitted twice with retention; 1 had phimosis and was circumcised; 1 was operated upon by Holt's dilator; 1 by Otis', and subsequently Richardson's, dilator.

Suspected calculi.—2. Both children; sound passed; none detected; 1 transferred with varicella; in both the principal symptoms were pain in passing water, and frequent micturition; in 1 the child had had an attack of retention, and a catheter passed, causing a false passage; treated by passing a flexible catheter and tying it in.

Calculus.—5. C. Ages 6, 10, and 11 in the males; age 28 in the female, who was admitted twice.

a. M., æt. 6. Symptoms of stone 9 months; lithotomy 5 days after admission; small lithic-acid calculus; some slight hæmorrhage per urethram and wound during first 12 hours; urine passed through by the urethra 7 days after operation: wound healed in 20 days, but he was not so well; temperature raised as high as 105°; wound reopened itself, and water again came through it; subsequently it closed, after having had a probe heated and passed along it; recovery in 95 days.

b. M., æt. 10. Symptoms 2 months; lithotomy 9 days after admission; lithic-acid calculus with phosphatic surface, and was large; recovery without complication in 23 days.

c. M., æt. 11. Symptoms probably about 8 years; lithotomy 36 days after admission; nature of calculus not mentioned; cure in 44 days.

d. F., æt. 28. Patient had been operated upon for vesico-vaginal fistula 12 times during a period extending over 2 years, but without complete success; 5 months before admission had had a piece of silver wire coated with phosphatic deposit removed from the bladder; admitted with symptoms of stone in bladder; urethra dilated and a stone 1 inch by ¼ inch was removed; phosphatic, with a piece of wire as nucleus; bladder well washed out. Patient readmitted in 6 months, and the urethra dilated, and a small phosphatic calculus removed, wire again being the nucleus. To be treated later for the fistula.

Urethra—

Impacted calculus in urethra.—2. *a.* M., æt. 3, admitted with extravasation of urine; prepuce slit up, scrotum incised on each side of median line; catheter passed, and found to grate against something rough; later on in the evening, the under surface of prepuce being much swollen, an incision made into it, and a large cavity discovered going beneath scrotum; probe passed into urethra, and a calculus was then felt just in front of bulb; an opening found, and stone picked out from the cavity above mentioned; catheter passed and tied in; swelling in scrotum soon went down. Patient remained in nearly 3 months, the wound in urethra not closing for some time. Lithic-acid calculus.

b. M., æt. 60. Phosphatic calculus in urethra; patient sent in for stricture, and in passing a catheter the calculus was touched. Extracted by perineal section; wound sutured up, and a catheter tied in; wound healed in 16 days. C.

Extravasation of urine.—3. D. 2 cases due to stricture; the other was suspected to be impacted calculus, but none found. Perineal section in each case. In 1, a child, death took place in 46 days, during which time the temperature was more or less high; examination for calculus made through various openings which had formed about urethra, perineum, and scrotum, but none found. P.M.—Abscess between bladder and anterior abdominal wall; pneumonia at left base; no calculus found.

2. M., æt. 32. Extravasation of urine; perineal section; death in 16 days from septicæmia. P.M.—2 strictures in urethra; bladder sacculated; ureters and pelvis of kidneys dilated; no sign of secondary abscess anywhere.

3. M., æt. 38. Extravasation of urine; perineal section; death in 18 days from pyæmia. (See Special Table, Pyæmia, Case No. 13, Table III.)

Stricture.—22. C. 8, R. 9, S. 1, D. 4. *Nature of stricture:* traumatic, 1; organic, 15; prostatic, 5; unknown, 1. *Treatment:* catheter in all; Richardson's dilator used in 2 cases. *Complications:* in 1 paraphimosis. *Fatal cases* 4—

a. M., æt. 38, admitted with stricture which he had had 10 years; catheter of small size, No. ½, attempted to be passed, but without success; 2 days after the temperature became raised, and hæmorrhage from urethra to a considerable amount took place; at a second attempt to pass catheter, 4 days later, hæmorrhage occurred; 13 days after the first attempt to pass a catheter, he was taken with pain in the knee: this pain increased, as also swelling; temperature raised to 104° and 105°; no rigors; incision on inner side of knee, evacuated pus 2 days later. 24 days after commencement of treatment suppuration into knee-joint, and extending up and down thigh; free incisions made. Death in 29 days. P.M.—Surgical kidneys; prostatic abscesses; no pyæmia.

b. M., æt. 62. Stricture of urethra; constant vomiting; very little water passed; catheter not able to be passed in at first. Death in 6 days, and apparently from uræmia. No P.M.

c. M., æt. 63. Stricture; cystitis. Death from exhaustion. P.M.—False passages into rectum; pelvic abscesses; cystitis.

d. M., æt. 67. Tight stricture; vomits everything. Death in 14 days. P.M.—Surgical kidneys, with cystitis and dilated ureters.

Perineal abscess.—5. C. 1, R. 2, D. 2. All a complication of stricture of urethra, and in all the abscess was incised, and a catheter introduced into bladder along the urethra.

Fatal cases, 2. *a.* M., æt. 42. Perineal abscess incised; erysipelas about perineum. (See Special Table, Erysipelas, Case No. 28.)

b. M., æt. 71. Patient very feeble; cystitis complicated the case. Death from gradual exhaustion. P.M.—Pelvis and calyx of kidneys contained bloody material; enlarged prostate; an opening just in front of prostate communicating with abscess cavity between prostate and rectum; pyelitis.

Of the other 2—Richardson's dilator used in 1; catheter in both.

Urinary fistula.—8. C. 5, R. 1, S. 2. *Situation* in perineum in 6; scrotum in 1; root of penis in 1. *Cause:* stricture of urethra in 6; after incision for perineal section in 1; after incision for lithotomy in 1. *Treatment:* catheter in 6; Cock's operation in 1, together with catheterism; in 1 nothing done, as patient was sent out for disobedience.

Abscess about urethra.—3. C. 1, R. 2. After circumcision in 1, and situated just near the neck of glans; 1 in scrotum following gonorrhœa of recent occurrence, patient went out of own accord; in perineum in 1; no urine comes through it.

Prepuce—Phimosis.—6. C. 4, R. 1, S. 1. Congenital in 3; acquired in 3, viz. by sore in 2, by gonorrhœa in 1. *Treatment:* circumcision in 5; nothing done in 1.

Paraphimosis.—1. C. Prepuce slit up. *Cause:* congenital.

Vesico-vaginal fistula.—3. After tedious labour in each: in 2 nothing done; in the other operation performed, but with no relief.

Recto-vaginal fistula.—2. Nothing done in 1; in 1, admitted with fistulous opening, left after operation for ruptured perineum; edges pared, &c.; some little relief afforded.

Recto-vesical fistula.—1. About 5 years previously an abscess burst into rectum; relieved by operation. Male patient.

Vesico-recto-vaginal fistula.—1. After a tedious labour, which caused besides the fistula some necrosis of pubes, operation for occlusion of vagina. Death in 20 days after operation. P.M.—Bladder packed full of calculi; surgical kidneys.

XI.—GONORRHŒA AND ITS COMPLICATIONS.

Gonorrhœa.—17. C. 13, S. 4. *Complication*: bubo in 3; excoriation in 2; inflammatory œdema of vulva in 2; glandular irritation in groins in 2; rheumatism and balanitis in 1. All treated by injections, and in the case of balanitis the prepuce was slit up.

Vaginal discharge.—24. C. 18, R. 2, S. 4. In all the discharge was of a mucopurulent and thin character, aad 2 was distinctly due to some inflammation of a chronic character of the cervix uteri, and syphilitic probably. *Complications:* fissure of anus in 3; excoriation about vulva in 2; glandular irritation in 1; soft sores in 1; scabies in 1; eczema capitis in 1. *Treatment* by injections, and in 2 cases by anti-syphilitic remedies. In only 1 case of fissure was any operation had recourse to, and then by division of sphincter.

Labial abscess.—5. C. 4, S. 1. All acute. Incision in 3 cases; in 2 the abscess had burst previous to admission. In 1, a girl, æt. 14, the cause was doubtful, she being apparently a respectable girl, as well as abscess in labium; she had another in left mamma; in 1 other case the patient was treated for syphilis, of which there was a history.

Bubo.—3. In only 1 case was a discharge found on admission, although probably had been present as a cause in all 3 cases. Treated by incision, and then dressed with either Lotio Nigra or Cat. Lini.

Warts.—16. C. 14, S. 2. In 2 cases no treatment; in 10, removal of warts by scissors, and then applying some strong astringent to raw surface; in 1, nitric acid used; in 1, strong perchloride of iron; in 1, hyd. perchlor.; in 1, where the growth of warts was enormous, the galvano-cautery was used. 2 cases were treated for syphilis; 1 had prurigo about genitals; 1 had a bubo in groin, which was incised.

Soft sore.—29. C. 20, R. 3, S. 6. M. 6, F. 23. *Situation*: 4 on prepuce; 2 on glans penis; 9 at entrance to vagina; 11 on the labium major; 1 about anus; 1 on opposite surface of buttocks; 1 not mentioned. *Complications*: bubo in groin in 7 cases; glandular irritation in 3; vaginal discharge in 3; phimosis in 1. In 2 there was syphilis, treated by usual remedies; in 2 hæmorrhoids, which were removed in 1 case by scissors. *Treatment* by Lotio Nigra or Zinci Sulph., and the buboes incised; circumcision in the case of phimosis; strong nitric acid used in 1 case for sweeping over surface of sore.

Vaginitis.—2. C. 1, R. 1. In 1 there were also soft sores about vulva, and buboes. Treated by injection of astringent lotions.

Hypertrophy of Nympha.—1. C. 6 months present. Removed by galvano-cautery.

X.—DISEASES OF LOCOMOTORY SYSTEM.

Periostitis.—

Tibia and fibula.—5. C. 3, R. 2. Involving *tibia and fibula* in 1 case only, resulting in necrosis of portions of shafts of the bones, and followed by removal of the dead portions at lower third of shaft; involving *tibia only* in 4 others, resulting in abscess in 2 cases; requiring subsequent removal of necrosed bone in 1; in 2 bone thickened; no sinus. Cause: not known in 2; direct violence in 1; syphilis in 2 probably, and these 2 were treated as if for syphilis with relief.

Femur.—1. R. Admitted with acute periostitis of lower third of femur; cause unknown: an abscess in popliteal space over lower end of femur was found and laid open, passing drainage tube right across. Necrosis of femur subsequently found, but sequestrum not loose enough for removal. Patient sent out with a sinus discharging. To come in again later.

Humerus.—2. C. 1, R. 1. *a.* M., æt. 11, fourteen days before admission had been swinging round by her arm, and soon after swelling and pain came on. When admitted, an abscess involving the upper third (not involving shoulder-joint) of arm was incised and humerus found bare over a large surface just below trochanter major. Necrosed bone removed in three operations extending over a period of four months. C.

b. M., æt. 37. Periostitis of upper part of humerus; patient had had his shoulder excised about twelve months before. To be out-patient.

Inflammation of Pericranium.—1. C. Syphilitic, treated with iodides.

Osteo-periostitis of femur and tibia.—1. C. Came on, it was supposed, after an attack of acute rheumatism; admitted with great thickening of lower epiphysis of femur and head of tibia, which latter was especially painful over the inner side; ice applied locally; iodides internally at first, but a few days after admission an incision was made over inner head of tibia and trephine used; abscess cavity opened and scooped out; later on an abscess cavity found in great trochanter.

Acute necrosis of tibia.—1. D. F., æt. 15, admitted in a high state of fever and suffering from acute necrosis of tibia; abscess opened; bone of whole shaft of tibia necrosed. Death in four days. See Sp. Table, Pyæmia, Case No. 1, Table III.

Necrosis of—

a. Frontal bone.—2. R. In 1 case nothing done; in 1 the bone not loose enough. Cause in 1 possibly congenital syphilis; in the other nothing known.

b. Parietal.—1. Cause syphilis; application of strong nitric acid to help the removal of the dead parts. Patient attacked by erysipelas; no bone removed. R.

c. Temporal.—1. R. Patient quite deaf; necrosis and caries of mastoid cells; abscess and cellulitis of neck; incisions.

d. Superior maxilla.—2. R. 1, S. 1. Both syphilitic; 1 congenital and 1 acquired. No bone removed in either.

e. Inferior maxilla.—4. R. *Cause:* carious teeth in 1; following carbuncle in 1; traumatic in 1. *Treatment:* removal of teeth in 1; sequestra in 3. Of the 4 cases 1 was admitted twice, and was attacked by erysipelas once. See Sp. Table, No. V, Case 18.

Humerus.—3. C. Of stump at upper third in 1; lower end of shaft in 1; 1 was a readmission. Strumous disease in 1; the other case had had his arm amputated for acute necrosis of greater part of shaft about 12 months previously. Sequestra removed in 2.

Carpal phalanges.—1. Cause unknown. Amputation at meta-carpo-phalangeal joint of middle finger.

Sacrum.—1. D. F., æt. 19, admitted with fluctuating tumour over upper part of left buttock; tapped and pus evacuated; subsequent incision; gradual exhaustion and death. P.M.—Chronic lumbar abscess; caries of sacrum. Pyæmic abscesses in lungs. (See Special Table III, Case No. 5.)

Femur.—15. C. 4, R. 7, U. 1, S. 1, D. 2. Involving shaft in 10 cases; stump of femur in 3; one case of necrosis of shaft was admitted three times, but at neither time was any bone removed; the sequestrum, if any, not being loose enough, and the patient not suffering much. Of the other 12 cases, sequestra removed in 10; bone came away with the discharge in 1; no sequestrum could be felt in 1. *Causes*: in 3 after amputation; in 4 after acute periostitis; in 1 after fracture; in 1 said to have come on after acute rheumatism; in 1 after injury; in 5 cause unknown. Of the fatal cases: 1 died of pyæmia (see Special Table III, Case No. 14); and 1 who had been transferred from Medical Ward with albuminuria sank after an operation for removal of sequestrum, which was some time after followed by severe hæmorrhage from the wound. No P.M.

Tibia.—10. C. 6, R. 4. Involving shaft in 9 cases; lower epiphysis in 1. Cause: strumous disease in 1; after injury in 3; after rheumatic fever in 1; after fracture in 1; in 4 not certain. Treatment: in the case where the lower epiphysis was diseased, the ankle-joint was involved and was treated by removing carious bone from the tibia and drainage tube placed into opening made, and foot placed in a fixed splint. Sent out eventually with sinuses still discharging, but practically cured; in 9 others sequestra removed; in 2 the necrosis was superficial and the sinuses gradually healed without actual interference; in 1 no sequestrum found.

Os calcis.—5. C. 1, R. 4. *Treatment.*—Removal of sequestra in 2; of back part of os calcis in 1; Syme's amputation in 1; nothing in 1. The removal of the diseased os calcis by Syme's amputation was questionable because there was no disease beyond a local necrosis of that bone; all other parts of foot healthy.

Metatarsal bones.—5. C. 4, R. 1. Of first in 3; fifth in 1; all in 1. *Treatment*: removal of whole metatarsal bone in 1; sequestra in 3; whole foot by Syme's in 1, because all the metatarsal bones were diseased, and there was a troublesome sore on the sole of foot, which was constantly healing and breaking out, especially when patient walked much.

Metatarsal phalanges.—1. C. Amputation great toe at ungual phalanx, and also the third toe of left foot through the joint between first and second phalanx.

XI. DISEASES OF JOINTS.

Shoulder—

(A) *Acute synovitis*, 1.—Symptoms had nearly disappeared when patient was admitted. Arm put up in a splint. Tonics. Cured.

(B) *Spurious anchylosis*, 1.—F., æt. 30, whose shoulder had become painful and swollen a week after her confinement, which occurred five months before admission. When admitted, wasting of muscles about joint, but no anchylosis. Faradisation. R.

(C) *Chronic arthritis*, 1.—M., æt. 21. Pain in shoulder commenced five years before admission, and during last eighteen months unable to use shoulder at all. Admitted with muscular rigidity; and when examined under chloroform there was found to be grating such as is met with in rheumatoid arthritis. Treated with iodides. No special relief. Shoulder not painful when touched.

Elbow—

(A) *Synovitis. Chronic*, 2.—Both treated with strapping and Scott's dressing.

(B) *Caries and Necrosis*, 3.—Of these two underwent excision, and one had the arm amputated at middle of humerus. (For the two excisions see Special Table, Excisions, Cases Nos. 1 and 3). The other case was a M., æt. 22, who was a strumous subject suffering from an abscess over front of sternum, and also disease over right elbow-joint. At first an attempt was made to save the arm by means of free incisions about elbow and keeping in splint, but as patient became much weaker the arm was removed by a circular at middle of arm. Cured. (See Case 2, in Special Table Excision.) The two excision cases also did well.

(C) *Anchylosis*, 3.—Of these 2 were admitted with an abscess over joint. In the other some adhesions were broken down under chloroform, and much relieved thereby.

Wrist—

Caries, 1.—M., æt. 51, who had had his right wrist excised seven years before admission with success by Mr. S. Jones, was admitted with caries of left wrist, which had troubled him for eight months. Excision. (See Special Table, Excisions, Case No. 5).

Carpus—

Caries of, 1.—F., æt. 31, admitted with abscess at back of carpus. Probe passes to dead bone. Patient sent out with a leather splint on.

Sacro-iliac—

Caries and Necrosis, 2.—(A) M., æt. 15, admitted with fluctuating swelling over sacro-iliac joint. Aspirator used as pus let out, and subsequently incised. Abscess still discharging when left.

(B) F., æt. 24. Readmitted. Had been in hospital some months previously, and had been to Margate in the interval. During her stay in hospital three exploratory operations were performed, bone being removed from crest and ala of ilium in two of them, but the third time some hæmorrhage occurred from an artery, and operation obliged to be left unfinished. Patient suffered during last two months of life from severe sickness and occasional attacks of peritonitis and neuralgic pain in right thigh; temperature also during last seven days was high, but she never had any rigor. Death 156 days after admission. P.M. Disease of sacro-iliac joint; abscess in gluteal and iliac regions; secondary affection of hip-joint, and necrosis of femur; lardaceous liver and spleen; fatty kidneys, and (?) pyæmic infarcts in lungs.

Hip—

Incipient, 18. C. 1, R. 15, U. 1, S. 1.—In none were there any external wounds about joint. Principal signs and symptoms of disease were muscular rigidity, pain and limping when attempt made to walk. In some few there was atrophy of gluteal muscles, and in three there were flexions. *Causes assigned* were—in 1, scarlet fever; in 1, rheumatic fever; 4 following upon a fall; 3 following a direct blow on hip; in 9, no special cause assigned. *Treated* by American extension in 10; long outside in 6; Thomas's splint in 1; and 1 had no splint, as symptoms of hip disease were altogether slight. *Complicated* by measles in 3, and varicella in 1.

Advanced, 19.—C. 6, R. 8, D. 5.—In 8, abscesses had formed, connected with joint; in 3 there were sinuses; in 5, deformity, without external wound; in 1, muscular rigidity and flexion; in 1, lordosis; in 1, anchylosis had commenced. Excision was performed in 14 cases, resulting in cure in 5, in relief in 4 (of which 1 was eventually readmitted, and died before hip wound closed), in death in 5. Of the deaths, 2 were from pyæmia, 1 from erysipelas, 1 from tuberculosis, and 1 was very suspicious of pyæmia (see Special Table, Excisions, Cases Nos. 6 to 17, and also 41, 42). *Complications* were in 3 of the cases excised erysipelas, and 1, not excised, was transferred to Medical Ward with measles.

Anchylosis.—1. M., æt. 22. Admitted with complete anchylosis of right hip, the limb being fixed out from the body almost at a right angle; this came on after some acute mischief occurring about hip a little over a year before admission. Subcutaneous section of neck of femur, and the limb brought down to a straight line with body; long outside put on, and the wound dressed antiseptically. The antiseptic dressing was obliged to be discontinued, owing to the purulent discharge becoming very foul, and it was feared that, unless a free exit were given, he would have acquired some form of blood-poisoning. After a protracted convalescence he made a good recovery in 6 months after the operation.

Hysterical.—2. Both females. In 1 no treatment, and in the other a blister applied.

Re-admissions.—16. C. 1, R. 14, D. 1. 11 of these were old cases of excision, of which 2 had been sent back from Margate, they being considered phthisical (and 1 of these 2), died eventually in the hospital, and the post mortem showed tubercle in both lungs, and amyloid degeneration of liver and spleen; in 3, sinuses connected with hip were still discharging; in 1 there was some carious bone to be removed; in 2, abscesses had formed about old excision wound, and were incised. Of those readmissions not old excisions, 1 had extension put on again; 1 had an abscess aspirated; 1 had a sinus discharging, and this was dressed with carbolic oil, &c.

Knee—

Acute synovitis.—13. C. 12, R. 1. *Causes assigned* in 5 were to rheumatic fever; 1 to a former accident; in 2 to cold; in 5 unknown. Of these, 1 had also an abscess formed in calf of same leg incised. All were *treated* by fixing the knee, and in 7 ice was applied as well; subsequently strapping with or without Scott's dressing. 3 were transfers from medical wards.

Chronic synovitis.—17. C. 4, R. 13. In 2 the *cause assigned* was rheumatic fever; in 1, coming on after confinement; in 2, probably from sequestrum in head of tibia; the rest, no special cause. *Treatment*: blisters in 2; cautery in 2; Scott's dressing in 6; iodine in 3; in 1, some adhesions broken down; 1 had an apparatus fitted to knee on account of relaxation of ligaments; in the other 2, nothing special beyond rest.

Incipient.—C. 2, R. 8. None of them had any special sign of disease in joint beyond swelling of synovial membrane, and in 4, flexion as well. In 3 there was pain on pressing over either tibia or femur. Treated by fixed splint in all, and sent out in it. Two cases had varicella, and were transferred.

Involving whole joint.—22. C. 15, R. 4, S. 1, D. 2. Out of these, 13 were excised; 6 were amputated; 1, the joint being contracted, extension was put on (this case transferred for varicella); 1, amputation proposed, but refused by parents of child; 1 sent out with joint fixed in plaster of Paris. One of the cases of excision subsequently underwent amputation. (See Special Table for excisions and amputations for all the cases operated upon, Cases Nos. 18 to 35.) *Complications*: varicella in 2; erysipelas, 3; scarlet fever, 1. The two fatal cases were pyæmia in 1; phthisis in 1. Of the amputations, 1 was necessitated by reason of an angular curvature; the other 5 were unfit for excision. (See Special Table for Cases of Pyæmia and Erysipelas).

Loose cartilages in joint.—1. R. 1. A subject of chronic synovitis. Joint tapped, and a number of solid substances felt. Nothing else done.

Loose semilunar cartilage.—2. R. 2. In both cases it was the internal one. Iodine applied in 1 case; plaster of Paris splint in the other. Caused by twisting the knee.

Anchylosis.—7. C. 1, R. 4, U. 2. *Cause*.—Came on after rheumatic fever in 4; during spontaneous cure of synovial disease of joint in 1; due to chronic synovitis in 1; in the other case the child had both knees much contracted, tendons of hamstrings being very prominent, probably due to position child allowed to lie in on account of disease of one hip. *Treatment*: extension in all but 2; in 1, hamstrings divided, and the patellæ loosened subcutaneously from parts beneath; adhesions forcibly broken down in 2, resulting in fracturing patella during the operation in 1 of them: 2 cases unrelieved at own request.

Old cases re-admitted.—15. C. 2, R. 9, U. 2, S. 2. Of these, 6 were admitted on account of the knee having become again contracted (2 only being old excisions); treated by extension; 2 had a boot and knee support fitted; 3 admitted with sinuses about old excision wound, and in 1 of these carious bone removed from inner condyle of femur; 1 admitted on account of bruising his excised knee, and slightly displacing the opposed surfaces of bones; treated by extension, and then put up in a fixed splint. 1 case treated for a short time and then sent to Margate; 1 to have splint renewed; 1 to be examined only.

Suppuration into knee-joint.—1. A child æt. 3; apparently without cause the joint became swollen and painful a few days before admission; when admitted, joint tender and fluctuating; no bone tenderness; free incisions made and pus let out; no bare bone felt. Sent out at end of 35 days with complete movement in joint. Dressing used was carbolic oil.

Hysterical knee.—2. Both in young females. *Treatment* nil.

Ankle—

Chronic synovitis.—3. R. In 2 the *treatment* was by local application and strapping: in 1 ice was applied for the first 10 days, as there were acute symptoms. 2 cases sent out with knee rest and 1 in a leather support. *Cause* unknown in 2; sprain some 3 or 4 months previously in 1.

Incipient.—3. C 1, R 2. F., æt. 3. Synovial disease of ankle; abscess about joint, no loose bone ever felt. Patient improved whilst in hospital and left with ankle in a special apparatus, made so as to keep the joint fixed.
extension.

F., æt. 8. Synovial thickening; treated by liq. iodi and a fixed splint. Patient also suffered from tarsal ophthalmia. Sent to Margate.

M., æt. 32. Six months before admission twisted his ankle and had pain ever since; synovial swelling; starting pain at night. Treated at first with leeches to neighbourhood of joint and extension; this followed subsequently by strapping with empl. opii; 3 months after admission fluctuation well-marked about inner ankle; pus suspected; aspirator used, but only bloody fluid let out; this, however, relieved him greatly, and he eventually went out much better though not cured.

Disease involving whole joint.—4. C. 3, R. 1. In all excision was done either partial or complete; in 1 amputation had to be done subsequent to the excision. Erysipelas a complication of 1. (See Special Table, Excisions and Amputations for Disease of Joints, Cases Nos. 36 to 39.)

Old excisions readmitted.—4. C. 2, S. 2. One came in with a small abscess over the cicatrix left after excision; 2 came in to be examined only; 1 with suspected sequestrum at upper end of fibula—none found.

Tarsus.—6. C. 3, R. 3. Disease involving calcaneo-astragaloid joint in 2; joints between scaphoid and cuneiform bones in 3; cuneiform bones and tarso-metatarsal joints of first and second toes in 1. *Treatment*: Syme's amputation in 2; removal of internal cuneiform in 1; gouging out diseased structures in 2; 1 sent to Margate.

Metatarsus.—2. Involving tarso-metatarsal joint of great toe in both. *Treatment*: Sime's amputation in 1; the other *nil.*

Spine—

(A) *Caries without curvature.*—4. R. 1, U. 1, D. 2. Lumbar abscess in 1; psoas abscess in 2; sinuses running towards spine in 2. Of the fatal cases, P.M. in 1 showed lumbar abscess, caries of dorsal and lumbar vertebræ, amyloid liver and kidneys. In 1, P.M. showed caries of lumbar spine, psoas abscess and caseous masses in both lungs.

(B) *Curvature.*—16. *Involving* cervico-dorsal region in 1; dorso-lumbar in 6; mid-dorsal in 3; lower dorsal in 2; lumbar in 1; not noted in 1. These were all antero-posterior curvature. The other 2 were lateral curvature involving dorsal region. *Complications*: paraplegia in 1; iliac abscess in 1; psoas abscess in 3. In the fatal case (an old man), P.M. showed angular curvature involving 8th, 9th, and 10th dorsal vertebræ, and caries and necrosis of 4th and 5th lumbar vertebræ, together with crest of ilium; all this latter involved in a large lumbar abscess on left side. Pleuræ contained recent lymph and considerable effusion. He had died with symptoms referable to his chest, which had come rapidly within a few days of his death. One case was transferred with varicella. *Treatment*: In 3, abscess incised; in 1, aspirator used; in 1, Sayer's plaster of Paris splint put on; in 3, a leathern support; 2 sent to a convalescent home.

APPENDAGES TO MUSCULAR SYSTEM.

Ganglion, 2.—R. 1, S. 1. Compound ganglion over the inner ankle, probably connected with posterior tibial and flexor tendons—to be out-patient. The other was one situated in palm, and extending beneath anterior annular ligament into wrist above; a small puncture made, and small melon-seed-like bodies evacuated; the cavity syringed out with weak carbolic acid—to be out-patient.

Inflamed bursa.—11. C. 11. *Caused* by direct violence in 1; after kneeling in 4; not known in 6; *treated* by ice in 2, of which 1 was subsequently tapped; incision in 9. All were bursa patellæ.

Enlarged bursa patella.—8. C. 6, R. 1, S. 1. All due to chronic bursitis, resulting in 4 cases in solid tumours. *Treatment*: removal in 4; tapping in 3; the other sent out because she was over 6 months pregnant. Of the 8 cases, 2 had both bursæ enlarged.

Enlarged bursa in popliteal space—1. Communicating with joint on outer side, following upon a blow; had had the swelling tapped once. *Treatment*: Liq. iodi. Probably connected with biceps tendon.

Enlarged bursa on back of carpus.—1. Removed before admission.

XIV. MALFORMATION.

Single harelip.—4. C. 2, R. 1, S. 1. Operation successful in 2; 1 case readmitted because there was a tendency to break down in the united parts; 1 unfit for operation on account of health.

Double harelip.—5. C. 1, R. 3, D. 1. Operation in 2 cases; 1 successful, and the other fatal from pneumonia; 1 transferred with measles; 1 sent out because too young for operation; 1 sent out because no room in the ward.

Cleft palate.—8. C. 2, R. 3, U. 3. Of the successful cases, 1 was a readmission with fistulous opening in soft palate after former operation, and 1 was completely cured of the cleft in soft palate; 1 other had partial success only; 3 unsuccessful; 1 unrelieved by own request; 1 had the tendons of tensor palati muscles divided as a preliminary operation.

Harelip and cleft palate.—3. C. 1, U. 2.

Operation for the closing of harelip was performed in 2 cases, being successful in 1, but the union broke down in the other; in 1, patient unfit state of health for operation. Measles attacked 2 of them.

Imperforate rectum.—2. Of these 1 was a readmission, a child 4 months old, who had been operated upon at St. Thomas's soon after its birth. The other, *an infant 4 days old*, admitted with a cul-de-sac at about half inch from the surface; exploratory incision in direction of rectum failed to reach any bulging rectum; Littré's operation in left inguinal region performed, the infant living 18 days, and dying from gradual loss of flesh. P.M.—Rectum found in the pelvis displaced to the left, and reaching to within an inch and a half of anal cul-de-sac; no fibrous connection between the two points. (See special account by Mr. Clutton, in 'St. Thomas's Hospital Reports' for 1876, Case No. 3, of Imperforate Rectum.) Both the above were males.

Imperforate anus.—1. Infant, æt. 2 days; no bulging could be felt; incision opened into bowel. Cured.

XV. DEFORMITY.

Wry neck.—1. Congenital. Tenotomy with only slight relief.

Webbed fingers.—1. Congenital, forming a complete web between 2nd and 3rd fingers, and a partial one between 1st and 2nd; thumb also is joined to index finger by a partial web, and projecting from centre of web was a supernumerary finger connected with the index; the supernumerary finger removed; the webs were treated by passing setons through their base, and these were to be left in for some time; a subsequent division to be made of whole web. To attend as out-patient.

Talipes—

Varus.—1. Tenotomy. Scarpa's shoe.

Valgus.—4. Fitted with a proper boot.

Equinus.—2. Tenotomy in both, and in 1 the plantar fascia also divided; Scarpa's shoe also used.

Equino varus.—9. C. 1, R. 7. Tendo Achillis divided in 4; tibial tendons and plantar fascia in 1; tibial tendons in 1; 1 case admitted with an ulcer over point of pressure on outer border of foot; 1, a readmission to be examined. Of the 9 cases 2 had double talipes.

Of lip after injury.—2. Same case readmitted; patient had previously fallen and cut her mouth at left angle, and the result of cicatrix was to make considerable deformity, and also there was a difficulty in keeping saliva in the mouth. V-shaped piece cut out of corner of mouth, and edges brought together; result very good.

Of nose after ulceration.—3. All females. In 1, ulceration had destroyed greater part of the soft structures of nose, leaving, however, sufficient edge round the alæ to allow of their being raised and brought down, so as to place between the two surfaces thus formed a piece of skin from the left arm; this latter piece of skin was retained by sutures of silk to the nose and separated alæ, and its root was left attached to the arm. The flap of skin was left united with the arm for 21 days; dressing used was carbolic oil. A special apparatus had been made to keep the arm raised and placed across the forehead. All sutures were removed at the end of 7 days, and entire union had taken place in 31 days; patient's appearance improved. In 1, the soft parts were rather more abundant; similar operation performed, but patient not so much improved; skin, however, in this case taken from forehead. In 1, where the soft parts of the nose had been bitten off by a dog, the operation was the same as in Case 1 in every particular, only the result was not so good, as some sloughing of septum occurred.

Cicatrix after burn.—1. Burn of face causing considerable erosion of left lower eyelid; plastic operation for relief; sloughing in part of the skin flap occurred; she was but slightly relieved. During her stay in hospital she fractured her left clavicle by falling down stairs.

Of femur.—1. Bowing of left femur from Rachitis, resulting in 5 inches shortening of the limb, of which 3 inches are due to the femur; subcutaneous section of femur just above the lower epiphysis, and limb put up in plaster of

Paris. She recovered without a bad symptom, the temperature never became raised even. Result: 2 inches longer than when admitted, and limb straight; fitted with boot.

Of great toe.—2. Both removed; erysipelas followed in 1; caused by a former removal of the first metatarsal bone in 1; and from an inflamed bunion in the other.

XVI. CELLULAR TISSUE.

Diffuse cellulitis.—16. C. 9, R. 2, S. 1, D. 4. *Attacking* scalp in 1; neck and face in 6; arm and forearm in 3; thigh in 1; leg and foot in 4; foot in 1. *Cause* unknown in 7; starting from a nævus that had been tied in 1; after scarlet fever in 1; lacerated and contused wound in 2; scalp wound in 1; bite of cat in 1; phlebitis in 1. *Treated* by incisions, poultices, &c., and in 1 the inflammation followed by necrosis of phalanx of toe.

Cause of death in 1 from exhaustion; pneumonia in 2; ? pyæmia in 1, but no post-mortem allowed, therefore no certainty.

Abscess.—74. C. 48, R. 21, S. 2, D. 3. *Situation*: cheek in 1; neck in 7; back and over scapula in 3; abdominal wall 2; in perineum of a female 1; ischio-rectal 5; lumbar in 2; iliac in 3; subpectoral in 1; post mammary in 1; superficial to breast in 1; axilla in 4; arm in 2; forearm in 1; thæcal of hand in 3; about hip in 6; thigh in 6; groin in 4; popliteal space in 5; thigh, involving knee, in 1; leg in 8; toe in 2; about ankle in 2; alevolar in 1; pericæcal in 1; scrotum in 1.

Of the 3 fatal cases. 1. M., æt. 31. Admitted with an abscess in calf of leg, which eventually spreading upwards into popliteal space, laid bare the posterior surface of the lower end of femur and opened the popliteal artery; hæmorrhage very considerable; amputation at lower third of thigh, but patient died within an hour after the operation.

2. F., æt. 36. ? Admitted with abscess about knee and opening into joint; amputation at lower third of thigh, high temperature, and death in 11 days. P.M.—Bone bare, but not necrosed; phlebitis of femoral vein; shoulder-joint contained pus; no deposits in lungs or liver; broncho-pneumonia. (See Pyæmia, Case 20.)

3. F., æt. 48. Admitted with a large abscess involving almost the whole of thigh and opening eventually into hip-joint; death from exhaustion. P.M.—Abscess in gluteal region, involving hip and burrowing down thigh; fatty liver; no pyæmia, although it was suspected.

Of the other cases—1 with thæcal abscess ended in the destruction of wrist and carpus, and excision performed (see special table, Excisions, Case 43.) 1 also ended in destruction of wrist; had forearm removed just above the wrist.

One case where the abscess subsequently involved ankle-joint had his leg removed at lower third. One of the cases of axillary abscess had empyema formed on same side as the abscess, probably caused by inflammation extending to pleura, not by perforation, as there were no suddenly acute symptoms to show that it had occurred; the empyema was tapped with aspirator. Erysipelas occurred in 2 cases (see Erysipelas, Table V, Cases 32 and 17.)

In the 2 lumbar abscesses, incisions made; caries of spine suspected in 1;

necrosis of ilium found in the other, but not able to be removed on account of its position and its not being separated from parts round sufficiently.

About the other cases nothing special need be said, they being treated as is usual.

Inflammation.—7. C. 6, R. 1. Cases put under this head include such as have neither reached the acute stage of diffuse cellulitis nor have become abscesses. Attacking abdominal wall in 1; thigh in 1; leg in 3; foot in 1; parts about knee in 3. Of the 3 cases of inflammation about knee 2 had effusion into the tissues over internal condyle of femur. In one of the cases of inflammation in the leg effusion into joint took place, and aspirator drew off semi-purulent fluid.

Gangrene.—4. C. 1, S. 1, D. 3. *Involving* foot in 3 cases, toes in 2. *Cause*: Embolism in 1; thrombosis in 1; plugging of femoral and external iliac from thrombosis in 1; the others probably due to atheroma in 1 and embolism in the other. The case that was cured had dry gangrene, involving four toes, which sloughed off; 1 patient was taken out in a dying state after lying in hospital under two days. Of the fatal cases—

(A) M., æt. 31, admitted with gangrenous inflammation of left foot. No pulsation in the femoral or iliac arteries of same side. History showed that the symptoms of accession were sudden. He felt his toes become numb and cold six weeks before admission, but for three weeks he was able to walk about. Some ulcers he had about ankle became sloughy and spread. Before death, 21 days after admission, the gangrene spread nearly the whole way up the leg—moist variety. P.M.—The femoral and external iliac completely blocked, beginning at bifurcation of common iliac, extending to the seat of the gangrenous portion of leg. No cardiac disease. Veins in both limbs varicose. No atheromatous change visible in any part of aorta.

(B) M., æt. 34. Recovering from typhoid fever; transferred from medical ward with gangrene of dry variety; amputation, a line of demarcation having been formed at upper third of leg. Died. (See Special Table, Pyæmia, Case 19).

(C) F., æt. 55. Dry gangrene of toe, which was removed twelve days after her admission, because the gangrenous inflammation was thought to have ceased, but it soon commenced again, and spread up to knee before death, 8 days after operation.

Sinus.—4. C. 2, R. 1, S. 1. Slit up in 2 cases, which were superficial and burrowing under the skin; in 1 no treatment; in 1, sent in for necrosis of femur and none found, poultice applied with relief.

XVII. CUTANEOUS SYSTEM.

Erythema simplex.—4. C. Over hip in 1; 3 over leg. In 1 abscess formed. ***Treatment***: Local application, as lotio plumbi.

Erythema nodosmm.—1. C. Tonics and local application of lotio plumbi; the arms and legs were affected.

Eczema.—3. C. 2, R. 1. Over leg in 1; about toes in 1; about stump of thigh in 1. ***Treatment***: Lotio plumbi.

Psoriasis.—2. C. 1, R. 1. Both over leg. Lig. arsenicalis in 1, with good result.

Ulcer.—43. C. 20, R. 19, U. 1, S. 1, D. 2. *Position* on lip, 2; arm, 1; back, 1; perineum cicatrix, 1; stump of lower extremity, 3; groin, 1; lower extremity, 34. *Causes:* Specific in 3; ? epithelioma, 1; struma, 2; varicose veins, 6; gout, 1; after abscess in 2; previous injury, 9; application of caustic, 1; about stump, 3; seat of compound fracture, 1; after gangrene, 1; cause not assigned in 13.

Fatal cases.—2. (A) M., æt. 34. Amputation through middle third of leg for chronic ulcer about lower third of leg, which rendered the foot and ankle useless. Erysipelas about the stump eight days after the operation, and death in sixteen days after. P.M.—Nothing special (see Erysipelas, Table V, Case 21).

(B) F., æt. 52, admitted with a very foul ulcer over lower third of leg; amputation through upper third. Death from pyæmia in sixteen days after operation (see Special Table, Pyæmia, Case 9).

Of the others—

(1) M., æt. 44. Ulcerated wound about knee, with burrowing sinuses into deeper structures. Twenty-five days after admission, symptoms of knee-joint having become involved, amputation was had recourse to. Amputation at middle and lower third of thigh. Cured.

(2) M., æt. 65. Ulcer about cicatrix of old compound fracture of lower third of leg into ankle, which was constantly giving him trouble. Amputation of upper third of leg. Cured.

(3) M., æt. 66. Had had some caustic applied to his knee, which caused a circular slough, and when admitted the knee found to be involved in the suppuration. The wound was treated with terebne oil and ice. He recovered the knee being anchylosed, and there was considerable angular deformity Amputation at lower third of thigh. Cured.

Erysipelas occurred in one other case (see Erysipelas, Case 25, Table V).

Elephantiasis of leg.—1. S. Affection has involved the left leg and foot for eight years. Occasionally a discharge of milky fluid from a patch of thickened tissue (lymphatic) behind knee. To come in again.

Carbuncle.—5. C. 4, R. 1. *Position* on neck in 2; shoulder, 2; buttock, 1. *Treatment:* Strapping in 1; local applications of soothing nature in the rest.

Hypertrophy of toe-nail.—1. C. Of great toe; removed.

In-growing toe-nail.—4. C. 2, R. 1, S. 1. Removed by the knife in 2; nail raised with pieces of lead, and boot ordered with broad toe-piece in 1; and in 1 nothing done, patient to come again. In all the great toe was affected.

Table II—*Injuries.*

	Total.		Ages.											Result.					Average number of days.
	M.	F.	5	10	15	20	30	40	50	60	70	80	+	C.	R.	U.	S.	D.	
GENERAL INJURY.																			
Burns	17	15	17	5	4	...	1	1	...	1	3	...	...	10	3	...	...	19	41
Scalds	19	7	17	2	1	2	3	1	...	...	...	...	...	12	6	...	1	7	25
Contusions	17	4	1	4	...	4	3	5	1	2	...	1	...	21	...	...	...	...	9
Multiple injuries	9	...	...	2	...	...	1	...	2	2	2	...	...	3	1	...	...	5	43
LOCAL INJURY.																			
Head—																			
Scalp wound with bare bone	5	1	1	1	2	...	...	...	2	...	...	...	...	4	1	...	...	1	27
„ without „	11	5	...	...	1	1	4	5	1	2	1	1	...	13	3	...	...	...	14
Concussion	61	9	3	11	13	7	14	10	5	4	2	1	...	64	3	...	...	3	12
Fracture of vault—																			
With depression	2	1	1	...	...	...	...	2	...	...	...	...	...	1	...	...	...	2	57
Fracture of base	6	1	...	1	1	...	3	...	...	2	...	...	...	4	...	...	...	3	32
Face—																			
Wounds of	5	4	...	2	...	1	3	1	1	1	...	...	...	8	1	...	...	...	10
Fracture of—																			
Nasal bones	3	1	...	...	...	...	2	1	1	...	...	...	...	...	3	...	1	...	7
Superior maxilla	1	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	17
Malar bone	1	...	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	25
Lower maxilla	2	...	...	...	...	...	2	...	...	...	...	...	...	...	2	...	...	...	7
Eye—																			
Wound of	4	1	1	...	...	...	3	1	...	...	...	...	...	1	2	...	2	...	7
Foreign body in	2	...	...	...	...	...	...	1	1	...	...	...	...	2	...	...	...	...	4
Ear—																			
Foreign body in	2	1	...	1	2	...	...	..	...	...	...	...	...	1	1	1	...	...	16
Neck—																			
Wound of	4	1	...	...	...	...	3	1	...	...	1	...	...	4	...	...	...	1	13
Sprain of muscles	1	...	1	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	22
Mouth—																			
Wound of gum	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	24
„ pharynx	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	7
Foreign body in air passages	4	1	3	...	1	...	...	...	...	1	...	...	...	2	...	...	...	3	17
„ œsophagus	1	1	...	...	...	...	1	...	...	1	...	...	...	2	...	...	...	...	6
Chest—																			
Contusion of	2	...	...	1	...	...	...	1	...	...	...	...	...	2	...	...	...	...	5
Wound of	2	...	...	...	...	1	...	1	...	...	...	...	...	...	2	...	...	...	1
Fracture, Ribs—																			
Simple	8	...	...	1	...	...	4	3	...	...	...	...	...	4	2	...	2	...	8
Complicated	4	2	...	...	...	1	...	...	2	3	...	...	...	4	...	...	...	2	16
Back—																			
Contusion	5	2	..	...	...	...	2	2	1	1	...	1	...	7	...	...	...	...	16
Wound of	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	16
Sprain of	...	1	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	9
Spine—																			
Concussion of	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	9
Fracture of	5	1	...	...	...	...	...	4	...	1	...	1	...	1	...	...	...	5	13
Injury to cord without apparent fracture	1	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	18
Malingering	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	..	11

Table II—*continued.*

	Total		Ages.											Result					Average number of days.
	M.	F	5	10	15	20	30	40	50	60	70	80	+	C.	R	U.	S	D.	
Local Injury (*continued*)—																			
Abdomen—																			
Contusion	8	1	...	3	3	1	1	1	...	...	...	...	...	7	...	...	1	1	8
Wound	1	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	3
Visceral injury	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	2
Pelvis—																			
Wound of genitals	1	4	1	...	...	1	2	1	...	...	...	...	...	2	1	...	2	...	5
Ruptured perineum	...	4	...	...	...	...	1	3	...	...	...	...	...	1	1	1	...	1	58
Simple contusion of perineum	1	...	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1
Contusion with complication	4	...	1	...	...	...	1	1	...	...	...	1	...	3	...	...	...	1	27
Wound of buttock	4	...	...	...	...	2	1	...	1	...	...	...	...	2	...	...	...	2	19
Upper Extremity.																			
Wounds	12	2	...	...	2	3	1	4	1	1	2	...	...	10	4	...	...	...	20
Wound of artery	5	2	1	...	1	...	2	2	...	...	...	1	...	5	1	...	...	1	11
Traumatic aneurism	1	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	50
Dislocation of—																			
Acromial end of clavicle	1	...	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	3
Shoulder	2	...	...	...	...	...	...	...	1	...	1	...	...	...	2	...	...	...	28
Elbow	...	1	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	111
Tendon of biceps	1	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	5
Obscure injury to shoulder	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...	...	17
Fracture of—																			
Clavicle	2	2	...	...	...	...	...	1	1	1	1	...	...	3	1	...	...	...	28
Humerus—																			
a. Simple	1	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	17
b. Comminuted	1	2	...	...	...	...	2	1	...	...	...	...	...	...	3	...	...	...	8
c. Compound	3	...	...	...	...	...	...	1	2	...	...	...	...	3	...	...	...	...	43
Elbow-joint, severe injury to	2	...	...	...	...	...	...	1	1	...	...	...	...	1	1	...	...	...	48
Old injury to elbow-joint	1	...	1	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	24
Fracture of—																			
Radius—*a.* Simple	1	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...	11
Ulna—*a.* Compound	1	...	...	...	...	...	...	...	...	...	1	...	...	1	...	...	...	...	24
Radius and ulna, compound	2	1	...	...	1	...	...	1	...	1	...	...	...	2	1	...	...	...	22
Fracture into wrist-joint, compound	1	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	37
Ununited fracture of—																			
a. Ulna	2	...	...	...	...	2	...	...	...	...	...	...	...	...	...	2	...	...	31
b. Ulna and radius	1	...	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	37
Greenstick fracture of radius and ulna	1	...	1	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	33
Double Colles' fracture	1	...	...	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	24
Sprained wrist	2	...	...	...	1	1	...	...	...	...	...	...	...	2	...	...	...	...	7
Crushed hand	5	...	1	...	1	1	2	...	...	...	...	...	...	4	1	...	...	...	40
Smashed fingers	4	1	...	1	2	...	1	1	...	...	...	...	...	3	2	...	...	...	41
Lower Extremity.																			
Contusion	8	5	2	...	2	2	2	1	1	1	1	1	...	10	2	...	...	1	16
Sprain	6	5	...	...	...	1	3	2	1	3	1	...	...	9	2	...	...	...	10
Wounds	12	2	1	2	1	4	4	1	...	1	...	...	...	13	1	...	...	...	31
Wound of knee-joint	3	...	...	1	1	...	...	1	...	...	...	...	...	1	...	...	...	2	11
Contusion of hip	1	1	...	...	1	...	...	...	...	...	...	1	...	2	...	...	...	...	19

TABLE II—*continued.*

	Total.		Ages.												Result.					Average number of days.
	M.	F.	5	10	15	20	30	40	50	60	70	80	+	C.	R.	U.	S.	D.	
LOCAL INJURY—LOWER EXTREMITY (*continued*)—																			
Traumatic synovitis of knee and ankle	26	6	1	3	1	4	8	8	3	3	1	...	...	28	3	...	1	...	18
Fracture of femur—																			
a. Simple	33	16	18	8	3	3	1	1	3	5	3	3	1	42	6	...	...	1	36
b. Comminuted	2	...	...	...	...	...	...	...	2	...	...	...	...	1	...	...	...	1	25
c. Compound	1	...	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	30
d. Complicated with knee-joint	1	...	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	32
Separation of lower epiphysis	2	...	1	...	1	...	...	...	...	...	...	...	...	2	...	...	...	...	31
Ununited fracture of femur	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	2
Fracture of patella	13	...	...	...	...	...	3	5	2	3	...	...	...	13	...	...	...	...	42
Fracture of tibia and fibula—																			
a. Simple	53	10	...	2	3	5	11	15	18	7	1	1	...	37	24	...	1	1	30
b. Comminuted	3	...	...	...	...	...	...	...	1	2	...	...	...	2	1	...	...	...	37
c. Compound	3	1	...	1	...	...	...	3	...	...	...	...	...	3	...	...	...	1	57
d. Compound comminuted	3	1	...	...	...	...	...	1	3	...	...	...	...	1	...	...	1	2	58
e. Complicated with joint	1	1	...	...	...	...	...	...	1	...	...	1	...	1	1	...	...	...	40
Fracture of tibia—																			
a. Simple	21	9	3	6	2	2	6	5	3	1	...	2	...	10	19	...	1	...	25
b. Compound	3	...	1	...	1	...	...	...	...	...	1	...	...	2	...	...	...	1	53
c. Ununited	1	...	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	24
Fracture of fibula—																			
a. Simple	10	5	1	...	...	2	5	4	2	1	...	...	...	7	8	...	...	...	19
b. Compound	1	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	19
Pott's fracture	12	1	...	...	1	...	1	6	2	3	...	...	...	2	11	...	...	...	19
Smashed foot	2	...	...	...	...	...	...	1	1	...	...	...	...	1	..	...	...	1	62
Smashed toes	5	...	...	...	...	2	1	1	...	1	...	...	...	3	1	...	1	...	17
Multiple injuries to lower extremity	6	1	1	...	1	...	1	2	1	1	...	...	...	3	...	...	...	4	43
Dislocation of ankle	1	...	...	...	...	...	...	...	...	...	1	...	...	1	...	...	...	...	20
Laceration of astragalo-calcanean joint	1	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	26
UNCLASSIFIED.																			
Trivial cases requiring no treatment	2	10	1	...	...	1	6	2	1	...	1	...	...	...	2	...	10	...	4
Cases brought in dead or dying	6	2	1	2	1	...	2	1	...	...	1	...	...	...	...	...	...	8	0
Brought in intoxicated	3	...	...	...	...	...	1	...	1	...	1	...	...	...	3	...	...	...	0
Uterine disease	...	4	...	...	..	1	...	...	1	2	...	...	...	...	1	...	3	...	10
Medical cases	4	3	...	...	...	...	2	4	1	...	...	...	...	1	5	...	1	...	13
Ophthalmic cases	1	1	...	1	...	...	1	...	...	...	...	...	...	...	...	...	2	...	8
Readmissions	10	4	2	2	3	1	3	2	1	...	...	...	...	2	3	2	7	...	29
Cases not registered, or the notes of which are lost	2	1	1	...	1	...	...	1	...	...	...	...	...	...	...	...	2	1	29
Total	1116	775	182	158	146	257	405	298	191	146	76	30	2	1056	194	40	139	162	35·4

SUMMARY.

GENERAL INJURIES.

Burns.—32. C. 10, R. 3, D. 19. Caused by the upsetting of a paraffin lamp in 1; gas explosion in 1; gunpowder explosion in 1; the other 29 by ordinary fire. Causes of death in 19 fatal cases were:—shock in 9; collapse in 7 (of these 1 died delirious and 1 had convulsions); from exhaustion due to moist gangrene of the injured limb in 1; from secondary bronchitis in 1. The other fatal case occurred in *a man, æt.* 66, who was admitted with a very deep burn of his left arm and forearm, especially about the elbow. Much sloughing occurred, and 6 days after admission it was found that the superior radio-ulnar joint and elbow-joint were opened, and amputation was had recourse to at the centre of the shaft of humerus. The patient, who before admission had been somewhat hazy in his intellect, was always more or less delirious and incoherent in his conversation during the whole time of his being in hospital. Six days after amputation some sloughing of stump occurred, and 20 days after the operation he had a severe rigor, lasting half an hour, with a temperature of 105·2°. A quantity of fœtid pus and gas could be squeezed out from the stump. In the next 24 hours he had two more rigors, each time the temperature reaching 105°. Quinine administered after each. Amputation now had recourse to at the shoulder-joint, as the end of humerus was found to be necrosed and the subject of osteo-myelitis. No improvement in his symptoms occurred, except that he had no repetition of the rigors, and he died within 48 hours after the second operation and 4 days after the first rigor.

The temperature between the rigors was never more than 101°. P.M.—All joints examined, and also veins of extremities and about stump, but none showed any sign of inflammation. No change in lungs beyond a few patches of broncho-pneumonia; no infarcts. There was a patch of old brain softening in right temporo-spheroidal lobe. Malformation of aortic valves resulting in only two segments.

Of the 19 fatal cases 15 of them were burnt over a large superficial area of the body, and 13 of these died within 24 hours after the injury.

Of those that recovered 1 was attacked by erysipelas twice, and 1 had pertussis.

The first dressing was in 13 cases acetic acid and whiting; in 18 carron oil; and in 1 terebine oil. Grafting skin was had recourse to in 1 case subsequently. No post mortem in any of the cases, except the 1 above mentioned.

Scalds.—26. C. 12, R. 6, S. 1, D. 7. Caused by hot water in 22 cases; hot fat in 2; application of too hot a poultice in 1; hot broth in 1.

Death a few hours after admission in 2 from collapse and 2 from shock: 1 died from convulsions 3 days after accident; 1 from exhaustion due to diarrhœa and vomiting 22 days after; 1, which had been scalded about mouth and pharynx, and upon which tracheotomy was performed 24 hours after admission, lived 10 days after the operation. P.M.—Scald about mouth and pharynx; no pneumonia, &c.

Of those that recovered 1 was attacked by measles, and 1 had 3 attacks of erysipelas.

In 24 cases the scalding was about various parts of trunk and extremities, and in the other 2 about the mouth and pharynx.

Carron oil used in 10 cases; acetic acid and whiting in 10; collodion and castor oil in 3, carbolic acid in 1. Simple oil in the scalds of mouth.

Contusions.—21. C. 21. In 1 case only was the injury at all severe, and that was in a *child*, *æt.* 6, who had been knocked about by her father; she was covered with bruises, and 7 days after admission it was feared that meningitis was coming on; she was constantly screaming or moaning, and could not rouse up. Temperature, however, not high at any time. Ice applied to her head. Her condition was a cause of anxiety for nearly a fortnight. She then rapidly recovered her usual liveliness, and went out quite well.

The other cases were very trivial, and 1 of these was transferred to Medical Ward for an attack of acute rheumatism.

Multiple injuries.— . C. 3, R. 1, D. 5.

1. M., æt. 6. Run over in the street; admitted in state of collapse, and died in a few hours. P.M.—Fracture of right second, third, fourth, and fifth ribs and clavicle on left side, right humerus and tibia; also lower jaw fractured. Blood in right pleural cavity, with extensive rupture and contusion of right lung.

2. M., æt. 8. Caught his leg in a wheel, and was flung violently round with it. Admitted with simple fracture of his tibia and fibula at the middle and radius and ulna at lower third of forearm. Treated by Bavarian for the leg, and anterior and posterior splints for the arm. Cured.

3. M., æt. 21. Fell from a scaffold, striking an iron girder as he fell. Admitted semi-conscious, with scalp wound over occiput, fracture of humerus at upper third, and fracture of pelvis, with a deep punctured wound over right side of pelvis, caused, probably, by striking some pointed body in his fall. Died in 2 hours. No post mortem.

4. M., æt. 44. Fell 50 feet from a scaffold, sustaining compound fracture of tibia and fibula at upper third of right leg, fracture of fifth rib on right side, and comminuted fracture of lower jaw between symphysis and left angle. Possibly some injury to lung, but this not certain. Treated by Liston's splint for leg, gutta-percha splint for jaw, and flannel roller for rib. This patient was under treatment for 262 days. He was delayed in his recovery by long attacks of erysipelas, which were repeated twice. The erysipelas attacked the leg, and required incisions. Went out cured. (See Special Table V, Case 39.)

5. Male, æt. 47. Struck on the left side of his body by a train in rapid motion, and knocked violently against another train. Admitted 5 days after the accident with severe contusion over the left scapula, fracture of eighth and ninth ribs on same side, and several scalp wounds. Examination under chloroform, could detect no fracture of scapula, which was suspected, as he was unable to use his left arm. Just previous to admission had had vomiting and retching. Went out in 10 days cured.

6. Male, æt. 56. Fell through a skylight a distance of 14 feet, first striking his chest and then his back. When admitted there was loss of sensation and motion in the lower limbs, and of sensation as high as midway between umbilicus and ensiform cartilage; priapism and excruciating pain in his back when moved.

Respiration abdominal. Extension to be made on his legs, and catheter to be passed frequently. Bed sore formed 5 days before death. There was no change in the symptoms before he died. Patient lived 8 days. P.M.—Fracture of fifth, sixth, and seventh spinal processes of dorsal vertebræ and neural arch of sixth vertebræ, with laceration and contusion of cord at seat of fracture. Fracture of skull extending from behind ear to the foramen magnum; part is separation of occipito-parietal suture on right side; contusion of brain at base on the same side as fracture. Fracture of costal cartilage at junction of it with sternum. Blood effused on surface of dura mater at upper part of fracture, also into mediastinum and right pleural cavity, and also between right pleura and ribs.

It will be seen that during life there was no symptom referable in any way to his head, nor was there the almost usual collapse which is present in injuries to chest with effusion of blood.

7.—M., æt. 57. Only fell a distance of 2 feet on to a wooden floor. Admitted with simple fracture of radius and ulna of left forearm, and simple fracture of tibia and fibula of left leg at lower third; also a small scalp wound. Four years previously he fractured his right thigh after only a slight fall. Traumatic delirium. Patient the subject of phthisis. Death in 36 days. No post mortem.

8. M., æt. 62. Knocked down and trodden upon by a horse; diagnosis fracture of manubrium sterni, acromial end of clavicle, second and third ribs on right side, with hœmoptysis. 3 days before death, seized with sudden pain in left chest, and a rise in temperature. The next day delirious. Died 15 days after accident. P.M.—Left pleura contained 5 pints of thick fluid; adhesions of right pleura. Two small purulent foci over lower lobe of left lung. Fracture of right clavicle between middle and outer third; of first and second ribs at junction with cartilage; of sternum opposite first ribs. Contusion and ecchymosis in mediastinum.

9. M., æt. 64. Thrown off his cab, receiving a fracture of left tibia, of outer third of left clavicle, and of the third, fourth, and fifth ribs on left side. Went out relieved.

LOCAL INJURY.

Head—

Scalp wound with bone bare.—6. C. 4, R. 1, D. 1. Exfoliation in 1 case, where a great portion of the central part of right fronto-parietal bones were exposed. Pneumonia occurred in 1 case, and erysipelas in 2. In the fatal case, *a boy, æt.* 11, admitted 5 days after the injury with headache, vomiting, and a temperature of 102·8°. No paralysis, but complaining of general pains. Had œdema of one eyelid, and a scalp wound in right temporal region; this wound was very foul. The night after admission he was delirious, screaming, and semi-conscious. Ice applied to head. Two days after admission had a rigor; on the third day muscular twitchings; on the 4th day left hemiplegia and a rapid pulse, with respirations up to 70 and 76 per minute. Before death left facial paralysis, constant movements of right side of body, and screaming. P.M.—Patch of broncho-pneumonia at upper part of left lower lobe; bare bone exposed over right frontal eminence; collection of pus in the right frontal region of skull extending into the orbital cavity, namely, along the soft structures. On opening skull there was found to be no fracture, but on the surface of dura mater in, right frontal region, there was a small quantity of pus. Beneath dura mater, and diffused over upper part of hemispheres, there was also pus. Slight softening of grey matter at the most anterior portion of the right frontal lobe over region of injury. Frontal sinus contained pus.

Bone not exposed.—16. C. 13, R. 3. Hæmorrhage from temporal branches of artery in 3 cases, treated by torsion; hæmorrhage in 2 cases from the ear, with, however, no other head symptoms. 1 case attacked by erysipelas twice during stay in hospital. (See Special Table, Erysipelas *arising*.)

Concussion of brain.—70. C. 64, R. 3, D. 3. Scalp wounds in 16, of which 2 cases had erysipelas; bleeding from ear in 2; scarlet fever in 1 case subsequently; 1 case had sustained a fracture of clavicle; 2 cases were complicated with facial paralysis. The following had other peculiar symptoms:

a. M., æt. 7, admitted unconscious after a blow on his head, and with rigidity of muscles in upper and lower limbs, together with convulsion of facial muscles. The unconsciousness came on half an hour after the blow; was there hæmorrhage on to brain. Patient did not remain long unconscious, and no other symptoms occurred. Treated by ice to head. Cured.

b. Male, æt. 11. Semi-conscious on admission, convulsive movements of lower limbs, and ptosis of right eye noticed the next day. Had bleeding from ear. Cured.

c. Male, æt. 14. Unconsciousness when he came in, and he remained so more or less until death. He had rigidity of left arm, and this soon followed by that the left leg. Rigidity noticed within twenty-four hours after accident. Patient's respirations became very laboured before death, but not stertorous. Temperature became raised to 104°. Death, without any change in symptoms, five days after accident. He had a great deal of vomiting and retching.

P.M.—Laceration of corpus callosum (right); incipient cerebritis. No fracture of skull.

d. Male, æt. 28. Seized with epileptic fits within short time after the injury; never had them before. Treated by bromide and ice. Never had any more after the first—those which happened within an hour of injury. Cured.

e. Male, æt. 30. The peculiarity was the fact of his losing all power of speaking coherently. Evidently he understood a question when it was asked, but he would answer in monosyllables, and these not implying what he intended to say. It was more than forty days before any improvement was noted. Eventually he quite recovered his power of articulation. Cured.

f. Male, æt. 37. An Irishman of never a very bright intellect, admitted, partly drunk and partly concussed, twenty-four hours after accident. He was able to be roused to answer questions, which he did slowly and deliberately. He had ptosis of left eye and external strabismus. Muscular rigidity of limbs. This patient slowly recovered under mercurials. Cured.

g. Male, æt. 40. Was admitted insensible, and with ptosis of left eye. Had been refused admittance into a London hospital, and taken to police-station, when he became still more unconscious, and was brought into St. Thomas' the day after accident. He was in constant attacks of convulsion up to time of death, which took place within twenty-four hours after admission.

P.M.—No fracture of skull. Contusion and laceration of anterior lobes of brain; also middle right lobe. A large dark blood-clot, situated over the left lateral sinus between dura mater and the bone. No aperture could be detected in the sinus, which itself contained a similar clot.

h. Male, æt. 46. Insensible on admission, and remained so until death. Loud stertor, and the respirations rapid. Almost pulseless. Compound fracture of lower jaw.

P.M.—Commencing inflammation of brain; small effusion of blood in posterior fossa of skull, between dura mater and brain.

The other cases were of no special interest, and only of a slight nature.

Fracture of vault.

A. *With depression.*—3. C. 1, D. 2. All were compound.

1. Female, æt. 3½. A compound depressed fracture of frontal bone in the median line; no head symptoms. Subsequently necrosed bone removed.

2. Male, æt. 35. Struck on the head by the edge of an iron pail which had fallen a distance of about forty feet. Accident occurred twenty minutes before admission, and during the interval he had been unconscious twice. When admitted was conscious, but could remember nothing of the accident. He had a large V-shaped scalp wound over temporo-parietal region (left), with stripping up of periosteum. Parietal bone fissured, and at one point looks as if depressed. Ice applied to head, and sutures to the wound. On the second day after admission some left facial paralysis noticed. He was ordered on admission ♏iij of Tinct. Aconiti, the pulse being then 76, but no influence was effected on the pulse until the third day, when he was taking the drug every three to six hours. The temperature rose to 100·7° the morning after admission, and steadily kept up to that point in the evening. On the fourth day of admission he became drowsy, and this increased up to time of death. On the tenth day the ice left off, and a blister to back of neck was ordered, also to discontinue the Aconite. On the eleventh day loss of power in right arm and leg. Ordered Liq. Hyd. Perchlor. (gr. ⅙), to be injected subcutaneously. Patient semi-conscious, and respirations becoming somewhat stertorous. Trephine applied in the evening. Fluctuation underneath dura mater, which bulged into the trephine hole. Puncture let out ʒiij of serum. Probe could be passed for some distance all round the aperture between the two tables. Right arm paralysed and contracted. No improvement in symptoms. Respirations became distinctly stertorous before death. Also some convulsions. Death on the 13th day. No P.M.

3. Male, 36. Admitted with a compound depressed fracture of left parietal bone, just above the left ear. No head symptoms. Trephine applied, the depression being ¼ inch in depth. Piece of depressed bone raed by elevator and depression reduced to ⅛ inch.

During first seven days he went on well, and nothing except the gradual rise of temperature was noticed. No paralysis. On the eighth day he had two rigors, with a temperature of 104°. Quinine given each time. Right facial paralysis noticed on the 9th day. Could not speak, but apparently understood what was said. Death on tenth day.

P.M.—Arachnitis. Secondary abscesses in lungs. Phlebitis of left lateral sinus. Pyæmia. (See Special Table, Pyæmia, case 21).

Fracture of base.—7. C. 4, D. 3. Of the fatal cases 1, M., æt. 22, was admitted insensible; not known how accident had happened; death within 12 hours after admission. P.M.—Contusion over left occipital region; partial separation of occipito-parietal suture; fissure across left petrous bone; hæmorrhage over occipital groove for lateral sinus opposite seat of blow; contusion and laceration by *contre-coup* of right frontal lobe at upper part.

2. M., æt. 24. Admitted 12 hours after accident, which had occurred whilst he was drunk; pulse 29; body cold; no stertor; died in a few hours. P.M.—Fracture of occipital bone; commencing at the protuberance, a fissure ran down across posterior fossa to left jugular foramen; cribriform plate of ethmoid also fractured; laceration of left hemisphere over parietal region; contusion of orbital convolution of frontal lobe.

3. F., æt. 52. Admitted in a semi-conscious state, in which she existed for 21 days, there being in that time little or no change in her condition, except that during the latter few days she could not be roused at all. P.M.—Fracture extending across petrous portion of temporal bone, and a small clot found beneath dura mater at that spot; Tubercular deposit in left lung.

The other 4 cases were only *conjectured* cases of fractured base.

1. M., æt. 7. On admission irritable; not insensible, but drowsy; strabismus and ptosis, which continued for more than a month; bleeding from ears on admission; when he went out the squint still present. Relieved.

2. M., æt. 13. Insensible on admission; this followed by constant moaning and screaming; intellectual impairment; recovered entirely in 45 days. Cured.

3. M., æt. 21. Insensible on admission; bleeding from ears. Cured.

4. M., æt. 56. Insensible on admission; bleeding from nose; left facial paralysis; ecchymosis of conjunctiva of left eye. Cured.

Face—

Wounds of.—9. C. 8, R. 1. Contusion in 6; contused wound in 1; lacerated wound in 1; gunshot in 1; this last occurred in a boy, æt. 17, who whilst playing with his brother received a bullet, which entered at the inner angle of right eye, and was diagnosed as having probably passed to the back of the left eye and damaging optic nerve. When admitted the boy had lost the sight of his left eye, and this immediately after the entry of the bullet. It was considered best not to attempt to remove the bullet; indeed it could not be felt, although probe could be passed in a distance of 3 inches. The eye ball became at first much distended, and pupil dilated. Examined under opthalmoscope showed the disc to be unchanged. Ice kept to head, and patient kept rigidly in bed for 33 days; wound at inner angle of right eye was closed completely in 7 days; no head symptoms beyond a slight headache.

Fracture of—

Nasal bones.—4. Simple in 3 cases, and compound in 1. Caused by a fall in 1 case, and by direct blow in 3.

Superior maxilla.—1. Anterior wall of antrum driven in by a kick from a horse; patient also had a lacerated wound of face; suppuration of wound, requiring incisions.

Malar bone.—1. Patient was admitted really because of bleeding from both ears.

Lower maxilla.—2. Relieved by moulded gutta-percha splints.

Eye—

Wound of.—5. Punctured wound, resulting in extravasation into anterior chamber, in 1 case; contusion in 3 cases, resulting in total disorganisation of eye in 1 from rupture and escape of vitreous body; in severe chemosis in 2 (of these 1 was transferred to care of the Ophthalmic Surgeon). The 5th case was injury to cornea, and protrusion of iris after wound from splinter of wood; transferred to Ophthalmic Ward.

Foreign body in.—2. In 1 a piece of percussion cap lodged on the iris; this was extracted by making an incision as for cataract, and then seizing the foreign particle with a small pair of forceps; in 1 lime blown into the eyes, followed by conjunctivitis, which was cured by cold application.

Ear—

Foreign body in.—3. In 1 the house surgeon whilst extracting the cherry-stone withdrew part of bony portion of external meatus, and the almost immediate result was facial paralysis, which existed up to time of patient's leaving, and does so now

(7 months after injury); of the other 2 cases, 1 was sent out with the cherry-stone still in, and the other was relieved of it.

Neck—

Wound of.—5. Punctured wound in 1; contused in 1; incised in 3, of which 2 were suicidal, and 1 of these latter proved fatal, and the other only a superficial wound. The fatal case was that of suicide, in which the cricoid cartilage was divided; tracheotomy tube inserted into the wound; patient sank from broncho-pneumonia. In the case of the punctured wound the site was at angle of jaw; hæmorrhage stayed by pad.

Sprain of muscles.—1. Caused by a fall from a loft 10 feet high. When patient left the neck was still somewhat stiff. It was at first thought he had met with a more serious injury.

Mouth—

Wound of gum.—1. This case, a man, æt. 42, was admitted on account of a severe contusion and laceration of his gum. A distinct history of hæmorrhagic diathesis on his mother's side, involving his own 2 brothers, his mother's brothers, and grandfather. The accident had occurred 4 days before his admission, and since then the gum has been constantly bleeding. During stay in hospital the hæmorrhage continued on and off, and sometimes he would remain in an insensible condition for 2 or 3 days. Treated by ergot in large doses of the liquid extract. Delirium during last 4 days of life. Death 24 days after admission. P.M.—General anæmia.

Wound of pharynx.—1. A child, 10 months old, having fallen upon a clothes peg, which struck the posterior wall of pharynx, was admitted with suppuration and sloughing. She sank in 7 days from broncho-pneumonia. P.M.—Broncho-pneumonia, chiefly of left lower lobe.

Foreign body in air-passages.—5. C. 2, D. 3.

a. F., æt. 2. Whilst eating her dinner she was suddenly seized with dyspnœa; was brought immediately to hospital, livid in the face; tracheotomy performed immediately, but no foreign body found. Tube was unable to be removed for 56 days.

b. M., æt. 3. Sudden dyspnœa from swallowing something; admitted immediately, and remained 6 days before any interference was found necessary, but as he had several attacks of dyspnœa tracheotomy was performed. Death in 3 days. P.M.—An almond found impacted in the lower part of larynx just above the tracheotomy tube; broncho-pneumonia; recent double pleurisy.

c. M., æt. 5. Died soon after admission before any tracheotomy could be done. P.M.—Cherry-stone lodged on the bifurcation of trachea.

d. M., æt. 14. Fell into some bran. Larynx completely blocked; tracheotomy. Died before operation completed.

The other case was a doubtful one. The patient had had tracheotomy performed 16 years ago, and this time admitted because it was thought that part of tracheotomy tube had fallen into trachea.

Foreign body in œsophagus.—2. Only 1 patient had any serious symptom, and she had tracheal dyspnœa; had been drinking some lemon juice; ? where foreign body was. The other patient thought a bone had become fixed in the gullet.

Chest—

Contusion.—2. Both trivial cases.

Wound of.—2. Both self-inflicted, and both merely superficial punctures.

Fracture of ribs—

Simple.—8. In 1 case bronchitis subsequently came on; 1 was transferred to Medical Ward on account of continued severe dyspnœa; 1 was readmitted because he asserted he had had an attack of hæmoptysis. Nothing special about the other cases, which were treated by bandage, &c.

Complicated.—6. 2 fatal cases.

a. M., æt. 54. Jammed between the buffers of an engine and a stack of coals; great collapse, and death in a few hours. P.M.—Fracture of sternum and some ribs with hæmorrhage into pleura and anterior mediastinum.

b. F., æt. 55. Fell from a scaffold. Death within a few hours. P.M.—Considerable extravasation between scalp and cranium; 5 ribs fractured.

Of the others, 1 complicated with hæmoptysis; 1 with emphysema; 1 with hæmoptysis and bronchitis; 1 emphysema and hæmoptysis.

Back—

Contusion.—7. None serious; 1 had a ventral hernia which gave him pain, this was treated by ice; supposed to have been caused by the rupture of some of the fibres of the rectus abdominis at time of accident.

Wound.—1. Patient received a stab opposite the seventh dorsal vertebra just to left of spine, a small piece of the vertebra was splintered off; hæmorrhage; ice applied. Went out without leave. Wound not healed.

Sprain.—1. Probably an hysterical case.

Spine—

Concussion.—1. Patient run over. When admitted powerless in lower limbs. Sent out improved, but not cured, because he refused further treatment.

Fracture.—7. C. 1, D. 6.

a. M., æt. 35. Struck in the back by a heavy plank. Admitted with slight loss of power in the lower limbs. Patient lived 20 days. P.M.—Fracture of eleventh dorsal vertebra; laceration and compression of cord and inflammatory softening; aneurisms of abdominal aorta and popliteal artery; large white kidney; hypertrophy of heart.

b. M., æt. 37. Admitted 26 hours after his accident, and died 39 hours after the injury. Fracture through articular processes of the sixth vertebra and dislocation backwards, with complete separation of sixth from seventh vertebra. Considerable hæmorrhage in spinal canal extending down outside dura mater. Cord nearly broken across at seat of fracture; the sixth vetebra was involved in the lower part of contusion of cord.

c. M., æt. 38. Whilst taking a header into a swimming bath was taken out of the bath insensible, but on admission was complaining of pain in neck and unable to move his legs, and had lost sensation as high as chest. There was unnatural prominence about the situation of fourth cervical vetebra. Patient placed in bed, and his head fixed between sand bags. Before death he became delirious, and temperature rose to 109°. Carotids were visibly pulsating. Death within 24 hours after admission. After death temperature rose to 110°. P. M.—Body too decomposed for examination.

d. M., æt. 38. Struck on the back of the neck by a heavy scaffolding pole. On admission was sensible, but could not move his left arm and leg; complained of pain in neck. Later on total loss of power in both legs, and his breathing became abdominal. Death in a few hours. No post mortem.

e. F., æt. 59. Fell a distance of 12 stairs so as to twist her head upon the neck. Admitted with pain in back of neck, and examination showed that the body of a vertebra (probably third) was projecting into pharynx. Nervous symptoms were difficult in moving right arm, and loss of sensation in the neck. This, then, was soon followed by hyperæsthesia. Patient treated by the head being strapped up so as to extend the hand upon neck. Patient left cured in 43 days, but prominence in pharynx remained.

f. M. æt. 71. Fell off a water cart on to the road striking his back between the shoulders. Admitted with complete paralysis of lower extremities, with loss of sensation extending across above nipple line. Abdominal respiration. Died suddenly on 3rd day. P. M.—Fracture of sternum opposite the third costal cartilage, with effusion of blood into anterior mediastinum. Separation of sixth from seventh cervical vetebra. Cord softened for ½ inch.

Injury to cord without apparent fracture.—1. M., æt. 44. Five weeks before admission he fell backwards downstairs and struck the back of his neck. He lost a certain amount of power and sensation in both his arms, but especially in the left; 4 days after the injury he was unable to use either arms. He never lost power in the lower limbs; in this state he was admitted; relieved a little by rest, &c. Malingering 1; patient soon relived by means of cautery; He made much noise whenever touched on spine, but never kept to same spot of the supposed seat of pain.

Abdomen—

Contusion.—9. C. 7, S. 1, D. 1. In 3 cases there was peritonitis, and one ended fatally. This patient was a boy, æt. 10, who, whilst at play with his other companions, had been jumped upon by some of them; the boy was admitted 3 days after injury in a state of collapse, and with distinct peritonitis; the symptoms had come on during the evening of the injury. Vomiting continued up to time of death, and the temperature remained below normal. Subcutaneous injections of morphia frequently given. Death in 4 days. P. M.—General peritonitis. 1 other case passed blood by the urethra, and it was suspected that there was injury to kidneys; the other cases were only slight injuries.

Punctured wound.—1. C. A superficial suicidal wound just below and in a line with ensiform cartilage.

Visceral injury.—1. D. M., æt. 55. Kicked by a horse at lower part of chest in front. On admission patient complained of pain in the external genitals, constant desire to use the stool, but with no relief; shock. Catheter passed and some blood drawn off; constant sickness up to time of death which took place 2 days after admission. P. M.—Extensive laceration of right lobe of liver; effusion of blood into abdominal cavity; fracture of eighth and ninth ribs opposite seat of laceration of liver.

Pelvis—

Wound of genitals.—5. In 4 there was contusion of vulva, in 2 of these there was hæmorrhage. In 1 the scrotum was lacerated; abscesses formed. None of these cases were serious.

Ruptured perineum.—4. C. 1, R. 1, U. 1, D. 1. In 4 cases operation for relief was performed, and in 1 only was it completely successful; 1 was partially so; 1 died from pyæmia (see Sp. Table III, Case No. 16); 1 case was not in a fit state for operation and so it was put off till later.

Simple contusion of perineum.—1. C. A child fell astride a plank of wood. No injury to the urethra.

Contusion with complication.—4. C. 3, D. 1. In all there was rupture of urethra. Out of these 1 was attacked by perineal abscess and erysipelas (see Sp. Table, No. V, Case No. 19), in 1 there was extravasation of urine, viz. an old man, æt. 75, admitted with rupture of urethra caused by falling astride the edge of an iron fender, extravasation of urine; perineal section; death in 7 days. P. M.—Hypostatic pneumonia; in 1 there was fracture of ramus of ischium and pubes; ruptured urethra; extravasation of blood over inner part of right buttock; catheter tied in. Cured.

Wound of buttock.—4. C. 2, D. 2. In 1 a punctured wound of buttock and wound of penis; in 1 contusion of buttock and scrotum; in 1 lacerated wound on buttock, and a deep punctured wound extending from buttock into the groin of same side; this was followed by gangrenous sloughing; an incision made in groin removed a piece of his trousers which had been forced up by a spike on which he had been impaled; death in seven days. The other fatal case was in a man, æt. 49, who had fallen whilst getting out of a railway car and sustained a severely contused and lacerated wound of buttock and perineum; six days after admission he was seized with rigors and temperature of 104°. He had 5 rigors between the occurrence of the first rigor and his death on the 11th day of admission. Highest temperature 105°. P. M.—No signs of pyæmia.

LOCAL INJURY TO UPPER EXTREMITY.

Wounds.—14. C. 10, R. 4. Of these 3 were incised, 4 were lacerated, 3 were lacerated and contused, 3 were poisoned, 1 contused. Of the incised wounds 1 was in a gouty subject, and there was considerable sloughing of tendon in fore-arm; of the lacerated wounds 2 were over elbow joint, 1 was of middle and ring finger, resulting in a stiff finger; 1, a lacerated wound of fore-arm, was followed by diffuse cellulitis. Of the lacerated and contused wounds 1 need only be noticed, viz. a boy, æt. 14, who caught his hand in a printing machine, and the whole of skin of fore-arm and arm, as high as the middle of the latter; amputation performed at the middle of the arm; cured. Delirium tremens attacked the case of contused wound; the patient was a traveller, and he was treated with Bromide of Potassium. Of the 3 poisoned wounds, 1 lost an index finger, on account of necrosis, following thecal abscess; 1 was admitted with poisoned wound of thumb, and this was followed by lymphangitis, resulting in necrosis of ungual phalanx of thumb, which was consequently removed; 1 a poisoned wound of ring finger—removal of finger followed by erysipelas. (See Special Table, No. V, Case 36.)

Wound of artery.—7. C. 5, R. 1, D. 1. Wound of superficialis volæ, four days before admission. Hæmorrhage came on twenty-four hours after the accident, and recurred several times. Treated by pad and bandage. Transferred with measles. Wound of ulnar artery in 3 cases, of which 1 was admitted 10 weeks after the injury, and in this case the wound not having healed, it was thought that some foreign body was still in it, and on being examined a piece of a silk ligature was found and removed. In the other 2 cases the artery was tied at its cut ends. Wound of radial, 1; cut ends tied; ulnar vein wounded; some considerable hæmorrhage; pad and ligatures.

The fatal case was a man, æt. 72, who fell in a fit, and, thrusting his hand through a piece of glass, cut his fore-arm just above the wrist, dividing his radial and ulnar arteries and several tendons. Patient much collapsed. and in two days was attacked by bronchitis, which carried him off at the end of ten days after admission. P.M.—Broncho-pneumonia ; old softening of brain.

Traumatic aneurism.—1. Male, æt. 15. Thirteen days before admission a glass bottle burst in his hand. He was admitted with a small pulsating tumour at seat of puncture in centre of palm. Pulsation lessened by pressure over the ulnar artery, and completely arrested by pressure on both radial and ulnar. Probably wound of superficial palmar arch. Treatment at first tried was pressure on the arteries at wrist, and flexion of elbow, but this not succeeding at the end of ten days the brachial was tied just below the middle. Five days after this, pulsation first felt in the radial and no pulsation in the palm. Cured. (See British Medical, Oct. 20, 1877.)

Dislocation of—

Acromial end of clavicle.—1. Patient to attend as an out-patient. Accident caused by falling against a post.

Shoulder.—2. Both subcoracoid ; 1 was six weeks old and the other eight weeks. Relief was afforded by breaking down adhesions, and the arms brought into a little better position.

Elbow.—1. Female, æt. 32. Fell on her elbow ten weeks before admission, and the joint was bandaged up in a splint, in which it remained eight weeks. On admission there was found to be partial dislocation of radius and ulna backwards. Treatment : Extension and manipulation reduced the deformity to a better position, followed subsequently by passive motion.

? *Of biceps tendon.*—Male, æt. 46. Ten weeks before admission fell on elbow. striking humerus upwards. Immediately afterwards was unable to lift arm to head Injury to region of shoulder obscure, but it was thought possible to be the above-mentioned injury.

Obscure injury to shoulder.—Female, æt. 51. Said to have dislocated shoulder three weeks before admission. No attempt made to reduce it until nineteen days after. When admitted, there was unusual prominence of acromion. Axis of arm altered slightly. Apparently head felt in axilla. Attempt at reduction, but with no success. ? Whether dislocation with fracture.

Fracture of clavicle.—4. 3 traumatic, and 1 due to syphilis. This latter case was treated by iodies, and went out with bones quite healed, as also an ulcer over the seat of fracture. Fracture occurred at outer $\frac{1}{3}$ in 3, and inner $\frac{1}{3}$ in 2.

Humerus—

Simple.—1. Oblique fracture of humerus at junction of middle with lower $\frac{1}{3}$ also contusion of elbow with some effusion of joint. Treated by angular splint and ice ; subsequently attended as an out-patient. Cause of accident by fall on elbow.

Comminuted.—3. Position of fracture was at lower $\frac{1}{3}$ in 2 cases ; joint not involved. Treated by angular splints. In the other the fracture was at upper and middle $\frac{1}{3}$ of humerus ; angular splints. Caused by direct violence in 2 ; doubtul in 1

Compound.—3. Caused by machines in 2 ; by being crushed between buffers in 1. All were cases of severe smash, and primary amputation performed in each—a shoulder joint in 2, and at upper third in the other. All did well, and without complication.

Elbow joint.—2. In 1, a male, æt. 34, fell on his elbow whilst riding on a bicycle, and sustained a compound dislocation of elbow inwards and backwards, with vertical fracture through head of radius. Primary excision; erysipelas 5 days after, and subsequently a great deal of suppuration; passive movement afterwards. When seen 9 months after operation he had very good use in the arm. (See Sp. Table, Excisions, Case No. 4.) In 1, a male, æt. 41, his elbow was caught between buffers and crushed. Amputation at middle third. Cured.

Old injury to elbow.—1. Eight weeks before admission she fell on her elbow. Put up in splints for 4 weeks. Could not straighten arm; supination fixed. Diagnosed as a probable fracture at lower end of humerus.

Fracture of radius.—1. Collis fracture. Treated by anterior and posterior splints. Patient had a scalp wound over temple.

Compound fracture of ulna.—1. Fall on elbow. Ice and terebine oil. Traumatic delirium.

Compound radius and ulna.—3. Caused by a machine in 1; run over, 1; direct blow, 1. Primary amputation at upper third in 1; lower third in 1; the other, which was only slightly compound, and fractured at lower third, was treated by splints.

Fracture into wrist.—1. Machine accident smashed wrist and fore arm. Amputation through elbow joint; whole of skin flap sloughed. Cured.

Ununited fracture of ulna.—2. Same case re-admitted. 17 weeks before admission he fractured his radius and ulna; the former bone united quickly, but at end of 4 weeks the ulna was found to be still ununited. Arm put up in splints, and tonics given, but 49 days after this still no union. To attend as an out-patient.

Ununited ulna and radius.—1. A male, fractured his forearm 19 months before admission; no union on admission. Put up in a fixed splint, but no union in 37 days.

Greenstick fracture of forearm.—1. A child, æt. 2. Fracture brought into straight position by force.

Double Colles.—1. M., æt. 50, was thrown out of a cart, falling on his hands. Treated by Gordon's splints, with a back splint.

Sprained wrist.—2. Nothing serious.

Crushed hand.—5. C. 4, R. 1. Caused by machines in 4; by buffers in 1; amputation of one finger, in 1; amputation of three fingers at metacarpo-phalangeal joints, in 2; at lower third of forearm, in 1; in 1, first a primary amputation removing all the fingers, but as there was a great deal of suppuration, and the wrist-joint subsequently becoming involved, the patient being exhausted, and apparently in great danger, amputation was had recourse to at upper third of forearm.

Smashed fingers.—5. C. 3, R. 2. In all, 1 or more fingers removed, and in 1 case the patient had secondary abscesses following the injury, one being connected with periostitis of a rib, and one over right tibia, this latter followed by necrosis of a portion of shaft, which was removed.

LOCAL INJURY TO LOWER EXTREMITY.

Contusion.—13. C. 10, R. 2, D. 1. In the fatal case, which was that of a child æt. 1¾ years, admitted one week after its leg had been run over, death occurred from gangrenous sloughing and erysipelas. P.M.—Pneumonia. The other cases were trivial. For Erysipelas, see Sp. Table.

Sprain.—11. C. 9, R. 2. Of knee joint, 1; of leg, 1; of ankle, 9. All treated by ice or evaporating lotion. Of the ankle cases, 2 were at first thought to be fractures of fibula.

Wounds.—14. C. 13, R. 1. Of these 6 were incised, 7 lacerated, and 1 punctured Erysipelas followed in 1 case, and another had his recovery protracted by much sloughing. For Erysipelas, see Sp. Table.

Wound of knee joint.—C. 1., D. 2. 1 M., æt. 6, fell on some glass, opening knee joint. Sutures, carbolic oil dressing; liston and ice-bag. Recovery complete.

2. M., æt. 14. Incised wound over joint? whether joint opened; closed with sutures. Patient stupid, and somewhat drowsy on admission, and the following day became insensible; rigidity of arms; jaw fixed. Sutures removed from wound, and pus let out. Temperature, 102. Death within 36 hours of accident. P.M.—Chisel wound cutting down to femur close to upper edge of cartilage, covering the internal condyle; inflammatory thickening about wound; pus. Synovial membrane of joint injected, and fluid of semi-purulent character. At base of brain there was effusion of inflammatory lymph. Pia mater dull and sticky. The previous history of the case pointed to no brain symptoms; at any rate, parents had noticed nothing previous to accident.

3. M., æt. 37. Admitted with an extensively lacerated wound in popliteal space, opening the joint; caused by his leg being crushed between the wheels of 2 carts; antiseptic dressing; Liston splint and ice; delirium tremens came on on the 3rd day and he died on the 4th. P.M.—Knee joint opened; slight suppuration into joint; extensive cellulitis up and down the limb; fatty change in liver and kidneys.

Contusion of hip.—2. In 1 there was considerable deformity until patient put under chloroform.

Traumatic synovitis.—32. C. 28, R. 3, S. 1. Of these 31 were of the knee, and 1 of ankle; treated by ice, and rest in splint; in 1 case there was delirium tremens.

Fractures—Femur—

a. Simple.—49. C. 42, R. 6, D. 1. Neck in 10, of which 3 were impacted; 3, intracapsular; 4, extracapsular. Ages varied from 40 to 82.

Of the rest *the position* of fracture was in upper third in 3 cases; middle third in 20 cases; lower third in 3 cases; upper and middle third in 2; middle and lower third in 8; place not mentioned in 2; 1 was a readmission. *Causes*: direct violence in 16; indirect in 19; muscular in 1; doubtful in 13. *Treatment*: long outside, and American extension in 10; long outside, 14; Liston back splint, 2; plaster of Paris or gum, 11; vertical extension, 2; Hamilton's, 3; Hodgkinson's, 2; flexion on pillow, 1; bandage only, 1; American extension only, 2; and 1 the form of splint not noted.

Comminuted.—2. C. 1, D. 1. In the fatal case, a man, æt. 49, delirium tremens carried him off 7 days after admission. Comminution of upper third and middle of femur; all organs fatty; jaundice before death: patient had been a great drinker, and was very obese. The other had comminuted fracture of lower third of femur; treated by Bavarian splint.

Compound—1. C. Wound in soft parts, only slight, and this was sealed with collodion; the boy recovered rapidly, and with no complication. Treated by long outside, and American extension.

Complicated with joint.—1. M., æt. 10. Comminution of lower third of femur into knee joint caused by a shaft of a cart falling on the thigh. Treated by a Liston splint made into double incline, and constant application of ice bag for the first 4 days; sent out with plaster of Paris splint on: complete cure.

Separation of lower epiphysis.—2. 1 in a child, *æt.* 15 *months*; treated by long outside, and sent out in gum bandage: 1 in a M., *æt.* 15 *years*, who caught his left leg between the spokes of a wheel in motion, and so violently twisted his leg; he was examined under chloroform, and lower epiphysis of femur found to be torn off. Treatment: long outside, American extension, and ice. Patient walked out in 46 days.

Ununited fracture of femur.—1. Of 4 years duration, in a M., æt. 40. Refused to be treated.

Fracture of patella.—13. *Caused* by muscular action in 8; direct violence in 4; doubtful in 1. All transverse. *Treatment* by back splints and ice. Good union in all, and generally close apposition of fragments, except in 1 case when the distance remained at ¼ inch. All sent out in a fixed splint either of leather or Plaster of Paris. Delirium tremens in 1 case.

Fracture of tibia and fibula—

a. Simple.—63. C. 37, R. 24, S. 1, D. 1. *Position* of fracture at upper third in 2; middle and upper third in 3; middle in 9; middle and lower third in 13; lower third in 28; in 8 others the fibula was broken at a much higher level than the tibia, which was fractured at junction of middle with lower third, and probably the fibula was broken secondarily to tibia. *Treatment* by Bavarian splint put on at once in 38; gum and chalk at once in 1; Liston's back splint in 14; Neville's swing splint in 10.

The fatal case was a F., *æt.* 75, who sank from double pneumonia of base; 1 case was complicated by slough about ankle, due to a contusion, and 1 with slough over inner malleolus from pressure of plaster of Paris splint; 1 had delirium tremens. *Caused* by direct violence in 17; indirect, 42; doubtful, 4.

b. Comminuted.—3. C. 2, R. 1. In 2 cases both bones comminuted, and in 1 the tibia only. *Caused* by indirect violence in 2; direct in 1. *Treated* by Bavarian in 1; Liston in 1; Neville in 1. Position generally at middle and lower third.

c. Compound.—4. C. 3, D. 1. 1. M., æt. 7. Run over by a tram-car; admitted in a state of collapse with compound fracture of right leg, and much contusion and laceration of soft parts. Primary amputation at middle of thigh, the skin and soft parts above and at knee being useless for flap, and also the knee being involved in the injury. Cured.

2. M., æt. 33. Admitted with compound fnacture of both bones from Railway injury; attempt to save the limb; secondary amputation 9 days after admission. Death in 2 days after amputation. P.M.—Pyæmia. (See Sp. Table Pyæmia, Case No. 15).

3. F., æt. 36. Knocked down by the falling of a scaffold and came in with compound fracture of both bones; put up in Neville's splint; some few incisions had to be made to evacuate pus; she did very well, and went out cured under 3 months.

4. M., æt. 40. Fell 40 feet, and sustained a fracture just above the ankle. Pad of oiled lint over the wound, and put up in Neville's splint. Cured within 2 months, with no complication.

d. Compound comminuted.—4. C. 1, S. 1, D. 2.

1. M., æt. 40. Admitted with compound comminuted fracture of both bones at junction of middle with lower third. Put up in Neville's splint and cold water dressing applied. Patient left hospital unpresented. There was some necrosed bone to come away, and union not complete. Cause: direct violence.

2. M., æt. 44. Compound comminuted fracture at upper third of leg caused by direct violence. Secondary amputation and death from pyæmia. (See Sp. Table, Pyæmia, Case No. 4.)

3. M., æt. 45. Admitted with compound comminuted fracture of bones just below knee; amputation through joint, leaving patella; great shock. Railway injury. Patient succumbed in 8 days. P.M.—Nothing special. Death from shock.

4. M., æt. 48. Run over in the street. Compound comminuted fracture of both bones at lower third. Neville's splint; carbolic oil dressing. Recovery without complication. Highest temperature 101·4°.

e. Complicated with joint.—2. C. 1, R. 1. In 1 there was synovitis of knee, and the other synovitis of ankle. Treated by back splint and ice.

Fracture of tibia—

a. Simple.—30. C. 10, R. 20, S. 1. *Causes* direct in 9; indirect in 13; muscular action in 1; doubtful in 7. *Position* of fracture was upper third in 2; middle in 7; middle and lower third in 7; lower third in 13; not noted in 1. *Treated* by Bavarian in 20; Liston's back splint in 6; short outside in 2; gum and chalk in 1; Neville's swing splint in 1.

b. Compound.—3. 1. M., æt. 4. Wound small and closed with collodion. Cured.

2. M., æt. 63. Compound fracture of tibia just above ankle; small wound closed with collodion; suppuration; high temperature; gangrene; secondary amputation at lower third of thigh. Cured.

3. M., æt. 13. Caught his foot in the "turning table" on a railway and sustained a fracture of tibia into ankle-joint. Treated at first as a contused and lacerated wound, the fracture not being at first recognised on account of swelling. Secondary amputation on account of the extensive cellular inflammation which extended nearly up to knee. After amputation the boy lived 7 days. There were no rigors, although the other symptoms were those of blood poisoning. Knee-joint just before death was aspirated and pus let out. Death 20 days after accident. No post mortem.

Ununited.—1. M., æt. 32. Admitted 6 months after fracture; no union, although he had had leg constantly in splints. Put up in plaster of Paris splint. Position of fracture is just below the middle, and new bone has been thrown out, but is not firm.

Fracture of fibula—

a. Simple.—15. C. 7, R. 8. *Position* of fracture was in upper third 1; middle third in 1; middle and lower third in 2; lower third in 10; not noted in 1. Cause: direct in 1; indirect in 13; not noted in 1. *Complicated* by synovitis of ankle in 1; delirium tremens in 1; superficial wound in 1. *Treated* with Bavarian in 11; short outside in 1; Liston's in 1; Neville's in 1.

b. Compound.—1. Wound treated with collodion. *Cause:* direct violence at lower third. Cured.

Pott's fracture.—13. C. 2, R. 11. *Cause:* indirect violence in 11; doubtful, 2. *Treated* by Bavarian in 7; short outside in 3; Liston, 3.

Foot—

Smashed.—2. C. 1, D. 1. Both railway accidents. Syme's amputation done at once in both; 1 recovered after protected stay in hospital due to cellulitis above the stump extending up the leg, and 1 died at end of 27 days from pyæmia. (See Sp. Table, Pyæmia, Case No. 6.)

Smashed toes.—5. C. 3, R. 1, S. 1. All due to severe direct violence; primary amputation of great toe in 1; Pirogoff in another; the others treated by splint, &c.

Multiple injuries to lower extremity.—7. C. 3. D. 4. Particulars as follows:—

a. M., æt. 4. Admitted with fracture of right femur at junction of upper with middle third, and a lacerated wound over left knee. Treated by long outside and American extension, and the knee dressed with terebine oil and ice. On second day an abscess had formed about knee and was opened; on the 12th day suppuration had extended into joint, free incisions made, and 4 days later erysipelas set in. Complete cure.

b. F. æt. 15. Admitted with smash of left leg necessitating immediate amputation above knee, and severe contusion of right knee which was followed by abscesses superficial to joint extending up the thigh and down the leg. Incisions and counter-incisions. Patient also injured index finger of one hand, and it was removed. Complete recovery in 66 days.

c. M., æt. 24. Thrown off a railway truck, was not unconscious; admitted with fracture of both femora. Two days after admission he was drowsy, and motions passed involuntarily. Died in four days after accident. P. M.—Acute cerebritis; no fracture of skull.

d. M., æt. 30. Compound fracture of right tibia and also of femur of same limb. In order to reduce deformity of tibia a piece had to be sawn off. Treated by Liston's back splint and a long outside. Cured.

e. M. æt. 36. Railway smash; double amputation the right limb being removed at middle of thigh, and the left below the knee. Death from pyæmia in 44 days. See Sp. Table Pyæmia, Case No. 11.

f. M. æt. 45. Compound comminuted fracture of both legs, involving both bones of right leg, but only the tibia of the left. Both fractures put up in Neville's splint. Secondary amputation of the left leg above the knee on account of extensive subcutaneous sloughing, and the occurrence of a rigor. Death from pyæmia in 30 days after accident. See Sp. Table Pyæmia, Case No. 10.

g. M. æt. 60. Admitted drunk with compound fracture of tibia and fibula of left leg necessitating amputation at upper third of leg; also had severe contusion of right leg followed by effusion of blood which suppurated, and there was following upon this extension cellular sloughing. Sudden dyspnœa the night preceeding death which occurred 14 days after the injury. P. M.—Effusion into left pleura.

Dislocation of ankle.—1. M., æt. 68. Slipped downstairs. Admitted with Pott's dislocation, which was reduced under chloroform, and limb fixed in Bavarian splint, and ice applied.

Laceration of astragalocalcanean joint.—1. Fell from a height. Ice applied, and limb fixed in Bavarian splint.

UNCLASSIFIED.

Trivial cases requiring no treatment.—12. R. 2, S. 10. Admitted for supposed injury in 5; Magdalen cases, 4; an impostor, 1; a case of a woman who had recently been operated upon for ovarian tumour at the Westminster, and was admitted until strong enough to go home, 1; patient complaining of cramp, &c., 1.

Cases broaght in dead or dying.—8. M. 6, F. 2. Compound fracture of both femora in 1; no post mortem. Injury to head in 1; no post mortem. Injury to chest in 3, in 1 of which there was a post mortem showing an extensively lacerated wound over the back, exposing the muscles; fracture of all the ribs on both sides; right pleural cavity contained 1 ounce of blood; left lung ruptured in several places; extravasation about liver. In 1, suspected to be syphilis, admitted with apparently thrombosis of veins of left leg, post mortem showed no thrombosis; ulcer of left leg of serpiginous character. In 2 cases of children who had been run over there was no post mortem on either.

Brought in intoxicated.—3. M. 1 supposed at first to be concussed; 1 had some bleeding from ear; 1 only drunk.

Uterine disease.—4. R. 1, S. 3. In 2 cases there was a prolapse of uterus, of which 1 not treated, 1 transferred to obstetric ward; 1 enlarged uterus due to subinvolution after pregnancy; 1, uterine tumour, probably fibroid.

Medical cases.—7. C. 1, R. 5, S. 1. Varicella in 1; ague in 4; amenorrhœa in 1; dysentery in 1; chronic rheumatism in 2, in 1 of which there was a low form of inflammation about ankle. Both treated by iodide of potassium; in 1 there was great increase of adipose tissue in abdominal wall.

Ophthalmic cases.—2. Myopia in 1; inflammation of tissues round eyeball in 1; both transferred to Ophthalmic Ward.

Readmissions.—14. C. 2, R. 3, U. 2, S. 7. Old amputations 6, of which 3 were fitted with apparatus for walking; I admitted because the flaps had reopened; edges pared with good result; 1 was attacked with measles 3 days after admission; 1 sent to an infirmary; 1 a case of probable sarcoma of upper third of femur, readmitted 3 times; 1 tumour of pharynx; 1 elephantiasis; 1 old case of lithotomy; 1 cicatrix of lip after injury, patient to come in again; 1 patient had incontinence; urethra cauterised (F., æt. 4.) Where no treatment is mentioned none was adopted.

Cases not registered, &c.—3. S. 2, D. 1. In 1, an infant, the injury was probably a fracture of thigh; 1 disease of hip, no operation; 1 fracture of tibia, followed by delirium tremens and death in 4 days. P.M.—General fluid and dark condition of blood; general degeneration; extensive congestion of lungs; petechiæ of pleuræ; hæmorrhage in spinal canal along dura matral sheath.

Table III.—*Surgical Operations*, 1877.

SURGICAL OPERATIONS.	Sex.		Ages.											Result.					Average No. of days of residence after operation.
	M	F	5	10	15	20	30	40	50	60	70	80	+	C.	R.	U.	S.	D.	
ON BLOOD-VESSELS.																			
Treatment of popliteal aneurism by compression with Esmarch's	1	..			...	...	...	1	...	...			...	1	...	...			17
Ligature of femoral	...	1	.	...	...	..	...	1	...	...	..	...	...	1	...	...		...	100
,, brachial	1	...		...	1	...	...	...	...	...	...	..	..	1	...	...		..	40
Varicose veins (obliteration of)	3	2	...	...	...	..	2	1	2	...	...	...	..	4	1	..	...	...	31
For varicocele	3	..	...	...	..	2	1	...	..	...	...	...	...	3	...		...	..	19
Hæmorrhoids	5	2	...	...	...	...	...	5	2	...	...	...	...	6	1	...	...	...	14
REDUCTIONS OF DISLOCATIONS—																			
a. Acromio-clavicular	1	...	...	...	..	...	...	1	...		..	.	...	...	1	...	...	...	3
ATTEMPT AT REDUCTION OF OLD DISLOCATION OF—																			
a. Shoulder	2	...	...	...	..	...	...	...	1	...	1	.	...	...	2	...	...	..	26
b. Elbow	..	1	...	...	...	...	...	1	...	...	...	.	...	.	1	...	...	..	109
FORCIBLE EXTENSION OF STIFF AND DEFORMED JOINTS—																			
a. Elbow	1	...	...	...	...	...	...	1	...	..	...	...	...	...	1	...	...	...	16
b. Knee	1	3	...	1	...	...	3	...	...	...	...	.	...	...	4	.	...	...	59
SUBCUTANEOUS SECTION OF FIBROUS BANDS ROUND PATELLA TO EXTEND KNEES	..	1	..	1	...	...	...	...	...	...	.	.	...	...	1	...	...	...	119
EXCISION OF JOINTS—																			
a. Elbow	1	1	1	..	...	...	1	...	...	...	...	..	.	2	...	..	...	...	167
b. Wrist	1	1	...	...	...	..	1	...	...	1	...	...	...	...	2	...	...	...	66
c. Hip	9	5	3	6	4		..	...	...	1	..	..	...	5	4	...	...	5	78
d. Knee	8	5	4	5	3	...	...	1	...	...	...	...	...	9	3	...	...	1	155
e. Ankle	3	...	1	...	...	...	2	...	...	...	...	...	...	1	1	1	...	...	112
TREPHINING	2	...	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...	2	6
REMOVAL OF DEAD BONE FROM																			
Lower jaw	2	..	...	...	...	1	1	..	...	...	...	...	...	...	2	...	...	..	84
Humerus	2	1	...	1	1	1	...	...	...	...	...	...	...	2	1	...	...	...	64
Femur	10	1	1	1	1	3	1	...	2	1	1	..	...	4	5	...	...	2	49
Tibia	11	1	1	5	5	...	..	1	...	...	...	...	...	7	4		...	..	54
Os calcis	3	...	1	...	1	...	1	..	...	...	...	...	...	...	3	...	...	...	73
Metatarsal bones	2	1	...	...	...	1	...	2	...	...	...	..	...	3	.	...	...	...	107
,, phalanges	...	1	...	...	...	...	...	1	...	...	...	...	...	1	..	...	...	...	10
OPERATION FOR FAULTY ANKYLOSIS—																			
Subcutaneous section of neck of femur	1	...	..	...	..	..	1	...	...	.	...	...	..	1	..	.	..	...	181
OPERATION FOR DEFORMITY OF FEMUR—																			
Subcutaneous section of lower third of femur	...	1	...	...	1	..	...	...	...	...	...	...	...	1	...	...	...	...	52

TABLE III—*continued.*

SURGICAL OPERATIONS.	Sex.		Ages.											Result.					Average No. of days of residence after operation.
	M	F.	5	10	15	20	30	40	50	60	70	80	+	C.	R.	U.	S.	D.	
AMPUTATIONS FOR DISEASE.																			
Arm—																			
Lower third	1	1	...	...	1	...	...	1	...	...	...	...	...	2	...	...	...	...	25
At wrist-joint	1	...	1	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	20
Fingers	2	...	...	...	...	...	1	...	...	...	1	...	...	1	1	...	...	...	17
Thigh—																			
Upper third	...	1	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	42
Middle third	2	...	...	...	1	...	...	1	...	...	...	...	...	1	...	...	...	1	39
Lower third	8	3	1	...	1	2	3	3	...	...	1	...	...	8	...	...	..	3	46
Leg—																			
Upper third	1	1	...	...	...	...	...	...	...	1	1	...	...	1	...	...	...	1	30
Middle third	1	..	...	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	117
Lower third	1	...	...	...	...	...	...	...	...	1	...	...	...	1	...	...	...	...	84
Foot—																			
Syme's	4	3	...	2	...	...	2	1	...	...	1	1	...	6	1	...	...	...	76
Toes	1	1	...	1	...	...	...	...	...	1	...	...	...	1	...	...	...	1	39
AMPUTATION FOR INJURY TO UPPER EXTREMITY.																			
1. PRIMARY—																			
Arm—																			
a. Shoulder-joint	2	...	...	...	...	...	...	1	1	...	...	...	...	2	...	...	...	...	35
b. Upper third	1	...	...	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	61
c. Middle third	2	...	...	...	1	...	...	...	1	...	...	...	...	2	...	...	...	...	29
At elbow-joint	1	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	37
Forearm—																			
a. Upper third	1	...	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	28
b. Lowes third	2	...	...	...	1	...	...	...	...	1	...	...	...	2	...	...	...	...	31
c. Fingers	6	1	...	1	1	1	3	1	...	...	...	...	...	4	2	1	...	...	21
Thigh—																			
a. Middle third	2	...	...	1	...	...	...	1	...	...	...	...	...	1	...	...	...	1	63
b. Lower third	...	1	...	...	1	...	...	...	...	...	...	...	...	1	...	..	...	...	66
c. Knee-joint	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	8
Leg—																			
a. Upper third	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	14
Foot—																			
a. Syme's	2	...	...	...	...	...	...	1	1	...	...	...	...	1	...	...	...	1	62
b. Pirogoff's	1	...	...	...	...	..	1	...	...	...	...	...	...	1	...	...	...	...	27
Toes	1	...	...	...	...	1	...	..	...	...	...	...	...	1	...	...	...	...	21
SECONDARY—																			
a. Shoulder-joint	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1	1
b. Middle third, arm	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1	23
c. Upper third, forearm	1	...	...	...	..	...	1	...	...	...	...	...	...	1	...	...	...	...	57
d. Fingers	3	1	1	...	1	1	...	...	...	...	1	...	...	4	...	...	...	...	38
e. Thigh, lower third	3	...	...	...	...	...	1	1	...	...	1	...	...	1	...	...	...	2	42
f. Leg, upper third	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	14
PRIMARY DOUBLE AMPUTATION FOR INJURY, LOWER EXTREMITY	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	44

Table III—*continued.*

SURGICAL OPERATIONS.	Sex.		Ages.											Result.					[illegible]
	M	F	5	10	15	20	30	40	50	60	70	80	+	C.	R	U	S	D	
AMPUTATION FOR INJURY TO UPPER EXTREMITY—*continued.*																			
Primary excision of elbow for injury	1							1						1					67
REMOVAL OF TUMOURS.																			
Scirrhus of breast		28						9	8	6	5			23	2			3	30
Recurrent scirrhus of breast		5						3	1			1		5					22
Recurrent cystic sarcoma of breast		1					1							1					22
Recurrent encephaloid cancer of thigh		1							1					1					58
Round-celled sarcoma of thigh (*see amputation for disease*).																			
Myeloid sarcoma of upper jaw		1							1					1					32
,, ,, lower jaw		1			1									1					31
Spindle-celled sarcoma of neck	1						1							1					29
,, ,, of labium major		1									1			1					47
For tumour on dorsum of foot (*see Syme's for disease*).																			
Epithelioma—																			
Of eyelid	1									1				1					19
Of cheek		1										1		1					41
Of lower lip	8								2	4	1	1		7		1			14
Of tongue	3								1	1	1			3					27
Of penis	1								1					1					22
Of clitoris		1						1						1					38
Of labium major		2							1	1				2					15
Sebaceous	2	1						2	1					3					16
Fatty	3	6	1			2		2	1	2	1			7		1		1	23
Glandular, of neck	1	1		1	1									2					33
,, breast		3					2	1						3					29
Papilloma of prepuce	1									1				1					26
Nævus	2		2												2				13
Epulis of lower jaw		1								1				1					9
Polypus nasi	1					1								1					1
Cystic tumour, ovariotomy		2					1	1										2	5
Dentigenous		1					1							1					4
Over parotid		1					1							1					3
Testicle (*see castration*).																			
Ranula		1					1							1					16
Exostosis	3	1			2	2								4					44
Fibro-vascular of thigh		1						1						1					24
Fibro-cartilaginous of ear		1							1					1					6
Removal of enlarged bursæ	1	4				1	1	1	1	1				5					19
OPERATION FOR—																			
Transfusion of blood	1					1												1	3
Tapping ovarian		7							3	4					6			1	17

TABLE III—*continued.*

SURGICAL OPERATIONS.	Sex.		Ages.											Result.					Average No. of days of residence after operation.
	M.	F.	5	10	15	20	30	40	50	60	70	80	+	C.	R.	U.	S.	D.	
REMOVAL OF TUMOURS—*continued.*																			
Tapping hydrocele and the radical cure of	5	...	...	1	...	...	1	1	1	1	...	...	...	5	...	...	...	...	12
Tapping bladder above pubis (*aspirator*)	1	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	27
Tapping bladder per rectum	1	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	25
Removal of warts	...	15	...	...	...	11	4	...	...	...	...	...	...	15	...	...	...	...	33
Hypertrophy of nympha	...	1	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	16
REPARATIVE OPERATIONS—																			
Nose	...	3	...	...	1	1	...	1	...	...	...	...	...	...	3	...	...	...	73
Eyelid (ectropion)	1	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	13
For cicatrix of burn	...	1	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	48
For recto-vesical fistula	1	...	...	...	...	...	...	...	...	1	...	...	...	...	1	...	...	...	81
Recto-vaginal fistula	...	1	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	26
Vesico-recto-vaginal fistula	...	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	20
Vesico-vaginal fistula	...	1	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	21
Ruptured perinæum	4	...	...	...	...	...	1	3	...	...	...	...	...	1	1	1	...	1	36
For deformities (*congenital*)																			
Harelip	5	1	6	...	...	...	...	...	...	...	...	...	...	4	...	1	...	1	13
Cleft-palate	4	2	2	2	...	1	1	...	...	...	...	...	...	2	1	3	...	...	31
For cicatrix of lip after injury	...	1	1	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	19
For webbed fingers	...	1	1	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	6
INCISIONS.																			
Tracheotomy for disease	1	...	...	...	...	...	...	...	...	...	1	...	...	...	1	...	...	...	31
„ „ scald	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	10
„ „ foreign body	1	3	3	...	1	...	...	...	...	...	...	...	...	1	...	...	...	3	19
Colotomy for imperforate rectum	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	18
FOR STRANGULATED HERNIA—																			
Sac opened—																			
Inguinal	9	...	1	...	1	2	2	1	1	1	...	...	...	6	...	...	...	3	26
Femoral	3	8	...	...	...	...	...	2	3	1	3	2	...	5	...	...	...	6	19
Umbilical	...	2	...	...	...	...	...	...	2	...	...	...	...	1	...	...	...	1	22
Sac unopened—																			
Inguinal	3	...	1	...	...	...	1	1	...	...	...	...	...	3	...	...	...	...	20
Femoral	1	4	...	...	...	...	...	1	1	2	1	...	...	4	...	...	...	1	31
For fistula in ano	16	4	...	...	...	1	7	6	2	2	1	...	...	14	4	...	2	...	31
For fissura ani	...	1	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	49
For imperforate anus	1	...	1	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1
Perineal section	3	...	1	...	...	...	...	2	...	...	...	...	...	...	...	...	...	3	26
INTERNAL URETHROTOMY—																			
Sudden dilatation by (Holt or Richardson)	4	...	...	...	...	...	...	3	...	1	...	...	...	4	...	...	...	...	33
Circumcision	7	...	1	...	...	2	3	1	...	...	...	...	...	7	...	...	...	...	23
Slitting up prepuce	1	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	7
Castration	1	...	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	22

TABLE III—*continued.*

SURGICAL OPERATIONS	Sex.		Age.											Result.					Average No. of days of residence after operation.
	M	F	5	10	15	20	30	40	50	60	70	80	+	C.	R.	U.	S.	D.	
INCISIONS—*continued.*																			
Prolapsus recti . . .	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	12
Tenotomy—																			
Muscles of palate . .	...	1	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	5
Of hamstrings, and also division subcutaneously of fibrous bands, fixing patella to femur, &c. . .	...	1	...	1	...	...	...	...	...	...	...	...	...	...	1	...	...	...	137
Talipes	6	3	5	4	...	...	...	...	...	...	...	...	...	3	6	...	...	...	84
Wry-neck	...	1	...	1	...	...	...	...	...	...	...	...	...	...	1	...	...	...	12
Removal of calculi—																			
From bladder by lithotomy	3	...	2	1	...	...	...	...	...	...	...	...	...	3	...	...	...	...	64
By dilating urethra . .	...	2	...	...	...	...	...	2	...	...	...	...	...	2	...	...	...	...	9
From the urethra by section	2	...	1	...	...	...	...	...	...	1	...	...	...	2	...	...	...	...	48
Removal of tonsils . . .	1	1	...	1	...	...	1	...	...	...	...	...	...	1	1	...	...	...	6
* Total . . .	247	172	46	38	33	40	62	82	46	41	25	6	0	273	77	11	2	56	...

* This list does not include any of the operations which are performed in the Medical Wards (viz. tracheotomy and paracentesis abdominis, &c.), nor does it account for the numerous operations performed by the Obstetric Physicians and the Ophthalmic Surgeon in their several Wards. For a list of these the Medical Registrar is responsible.

SPECIAL TABLE I.—*Hernia.*

No.	Occupation.	Sex.	Age.	Nature of hernia.	Previous duration of, if known.	Period of strangulation.	Treatment.	Contents of sac if known.	Result.	Remarks, post mortem, &c.
1	Infant	M	14 days	Scrotal	2 days	2 days	Operation	Sac opened; small intestine	C.	Wound not healed when he left. Intestine at time of operation was congested.
2	"	M	9 mos.	"	...	2 "	Taxis and ice	...	C.	Truss given.
3	"	M	10 mos.	"	...	?	Reduced under chloroform	...	C.	
4	Child	M	1 yr	"	Since birth	4 days	Operation	Sac unopened	C.	Truss.
5	"	M	$1\frac{1}{4}$ yr	"	"	1 day	Taxis and ice	...	C.	Truss. Patient attacked with measles during stay in hospital.
6	"	M	5	Inguinal	...	...	Ice	..	C.	
7	Printer's boy	M	13	Scrotal	Some years	20 hours	Operation	Sac opened; only omentum seen, together with about 3 oz. of bloody fluid	C.	
8	Machine boy	M	16	"	2 years	12 "	"	Sac opened; small intestine and omentum	C.	A great deal of sloughing of omentum occurred.
9	Printer	M	17	"	Congenital	About 12 hours	"	Sac opened; small intestine	C.	Truss.
10	Folder	M	18	"	Previously strangd.	4 hours	Ice	...	C.	Truss.
11	Labourer	M	19	Inguinal	Acute	12 "	"	...	C.	
12	Plasterer	M	22	Scrotal	2 years	12 to 15 hos.	"	...	C.	Truss.
13	Servant	F	24	Inguinal	5 "	2 or 3 days	"	...	R.	Probably omentum only in the sac; mass not reduced entirely.
14	Joiner	M	25	Scrotal	From birth	3 days	Operation	Sac unopened	C.	Stricture at external ring.
15	Clerk	M	27	"	Acute	14 hours	"	Sac opened; small intestine, and omentum, the latter ecchymosed	C.	Considerable inflammation of wound followed. Circumcision for acquired phimosis.

SPECIAL TABLE I—*continued.*

No.	Occupation.	Sex.	Age.	Nature of hernia.	Previous duration of, if known.	Period of strangulation	Treatment.	Contents of sac if known	Result	Remarks ; post mortem, &c.
16	Insurance agent	M	29	Inguinal	...	...	Operation	Sac opened ; small intestine	D.	Death in 2 days from peritonitis. P.M.—Right testis undescended ; a coil of small intestine lying under neck of sac with recent adhesions ; a small band, probably from mesentery, passed just in front of neck of sac and round intestine ; recent peritonitis.
17	Carman	M	31	,,	...	6 hours	Taxis and ice	...	...	Truss.
18	Market gardener	M	33	,,	5 years	24 ,,	Reduced under chloroform	...	C.	Truss.
19	Stable-man	M	37	Scrotal	13 ,,	4 hours	Operation	Sac unopened	C.	Stricture at external ring. Operation was done 11 hours after admission. Truss given.
20	Stoker	M	37	Inguinal	5 ,,	4 days	Taxis and ice used, and symptoms relieved for 2 days. Operation then had recourse to	Sac opened ; fluid let out ; omentum only seen	C.	Truss.
21	Married	F	38	,,	2 ,,	5 hours	Ice	...	C.	Truss.
22	Lighterman	M	45	Scrotal	4 ,,	...	Reduced by taxis ; ice	...	C.	Hernia reduced before admission into the ward.
23	Fireman	M	45	Inguinal	Some years	20 minutes	Reduced by taxis	...	C.	Truss.
24	Carman	M	46	,,	5 years	3 hours	Operation	Sac opened ; omentum and small intestine, which was much congested	D.	This patient was operated upon for strangulated hernia 5 years ago, and 6 weeks ago he was admitted the second time with the rupture strangulated, which was reduced by ice. This, the third time, death from peritonitis. P.M.—Acute peritonitis ; general decomposition of viscera.

25	Labourer	M	52	Scrotal	6 ,,	...	...	...	R.	Only admitted to have a truss.
26	Woollen agent	M	56	Inguinal	Since birth	A few hours	Ice	...	C.	Previously strangulated 4 months ago. Worn a truss 30 years.
27	Shopkeeper	M	68	Scrotal	40 years	4 to 5 days	Operation	Omentum and small intestine	D.	Death in 2 days. P.M.—Omentum filling the wound; lower end of ileum dark and congested.
28	Married	F	44	Umbilical	...	...	Truss	...	R.	Readmitted to have a new truss fitted. Patient was operated upon 12 months previously.
29	,,	F	45	,,	5 years	7 hours	Operation	Sac opened; dark, bloody fluid in sac, intestine and omentum	C.	At the operation the omentum was left in the sac; subsequently suppuration of the sac with high temperature. This patient was fitted with a belt. She was readmitted a few days after she had gone out, with great pain in abdomen; relieved by aperients.
30	Single	F	46	,,	Not known	Not known	,,	Sac opened; omentum and ? small intestine	D.	Death in a few hours. No post mortem as the body too decomposed.
31	Married	F	47?	,,	...	...	...	...	...	Readmission. (See No. 29 ante.)
32	,,	F	60	,,	6 years	2 days	Ice	...	C.	Truss.
33	Widow	F	60	,,	8 ,,	? 4 days	Enema	...	C.	
34	Child	F	2	Femoral	14 days	3 hours	Ice	...	C.	Truss.
35	Married	F	33	,,	10 years	24 ,,	Operation	Sac unopened	C.	Truss.
36	,,	F	34	,,	...	7 days	,,	Sac opened; small intestine	D.	Intestine at operation was found to have sloughed at point of constriction. Death in a few hours. No post mortem.
37	,,	F	35	,,	Not known	3 ,,	Ice	...	C.	Truss.
38	,,	F	37	,,	7 years	5 hours	Taxis under chloroform	...	C.	Truss.
39	Labourer	M	39	,,	2 ,,	2 days	Operation	Sac opened; omentum and small intestine	D.	Death from acute peritonitis in less than 48 hours after operation. P.M.—Acute peritonitis; viscera all decomposed.
40	Wheelwright	M	42	,,	Not known	A few hours	,,	Sac opened, and found in a state of suppuration	C.	Patient's symptoms were relieved by ice for the first 3 days, and then the temperature being raised it was thought advisable to examine the tumour in groin.

Special Table I—*continued.*

No.	Occupation.	Sex.	Age.	Nature of hernia.	Previous duration of, if known.	Period of strangulation.	Treatment.	Contents of sac if known.	Result	Remarks, post mortem, &c.
41	Married	F	42	Femoral	6 years	6 hours	Operation	Sac opened and some omentum removed	C.	Attacked by bronchitis during cure. Truss fitted. Patient was in hospital 3 months previously, and then hernia reduced by taxis.
42	Cabman	M	46	,,	Some years	12 hours	Taxis	...	C.	Truss. This patient was readmitted a second time 10 months after this.
43	Married	F	44	,,	9 months	2 days	Operation	Sac opened; omentum and small intestine	C.	Truss.
44	Pointsman	M	47	,,	20 years	7 hours	,,	Sac opened; omentum in sac, also small intestine	C.	Taxis attempted with no success; operation 3 hours after admission. Truss.
45	Married	F	57	,,	30 ,,	A few hours	,,	Omentum in sac	C.	Omentum removed.
46	Boiler-maker	M	58	,,	Not known	4 days	,,	Sac missed at operation	D.	Double pneumonia, and death on the 3rd day. P.M.—No peritonitis; double pneumonia of base; granular kidneys; small abscesses in and amongst muscles of thigh; ? pyæmic; mark of constriction of small intestine with ulceration.
47	Cabinet maker	M	59	,,	40 years	4 hours	Ice	...	C.	Truss.
48	Widow	F	59	,,	Not known	12 ,,	,,	...	C.	Operated upon twice previously more than a year ago.
49	Married	F	60	,,	6 years	5 ,,	Operation	Sac unopened	C.	Truss.
50	,,	F	63	,,	Not known	19 ,,	Taxis	...	C.	Truss.
51	Single	F	64	,,	,,	Not known	Operation	Sac opened; omentum and small intestine	D.	Patient admitted unconscious; death in a few hours. P.M.—No peritonitis.

52	Married	F	65	,,	,,	3 days	,,	Sac unopened	C.	Truss.
53	Widow	F	65	,,	,,	61 hours	,,	Sac opened ; contents not mentioned	D.	P.M.—Body too decomposed for examination. Death on 6th day.
54	,,	F	66	,,	,,	? 7 days	,,	Sac opened ; omentum and small intestine	C.	Had slight peritonitis. Truss.
55	,,	F	76	,,	,,	5 ,,	,,	Sac opened ; small intestine and omentum	D.	Death in a few hours. P.M.—Granular kidneys ; omental hernia with small intestine, which was dark and congested at point of stricture.
56	,,	F	78	,,	40 years	3 ,, .	,,	Sac opened ; intestine and omentum	D.	Death in 2 days. No post mortem.

SPECIAL TABLE II.—*Excisions and Amputations for Diseases of Joints.*

No.	Sex	Age	Occupation.	Joint affected.	State on admission.	Operation.	State in which joint found	Result	Notes, &c.
1	M.	4	Child	Elbow	Joint flexed and slight general swelling; sinus leading upper end of ulna, which was carious	Excision	Caries of upper end of ulna; almost total destruction of cartilage covering the other bones of joint	C.	Patient had besides his elbow mischief necrosis of first phalanx of right great toe. History of syphilis on mother's side before her marriage.
2	M.	22	Porter	,,	Admitted with abscesses about elbow leading to necrosed bone in joint; patient had had discharge from elbow 8 months	Amputation at middle third of arm	Not noted	C.	Amputation had recourse to because patient was becoming very feeble from constant discharge from arm.
3	F.	29	At home, single	,,	Swelling of joint with flexion; pain produced especially when head of fibula pressed upon	Excision	Abscess cavity above olecranon process and another round radius; caries of troclear surface of humerus; synovial disease	R.	Fair movement allowed of.
4	M.	34	Printer	,,	Compound dislocation of elbow inwards and backwards; vertical fracture through head of radius	Primary excision	—	R.	When seen a month after he went out, viz. 3 months after accident, he had very good movement. All wounds healed. Accident caused by violent fall on elbow.
5	M.	51	Labourer	Left wrist	Swelling at back of joint with sinus in that position; pain on pressing carpus against radius; bare bone felt over lower radio-ulnar joint	Excision	All bones of carpus soft and carious; abscess found in connection with the radio-ulnar joint	R.	This patient had had his right wrist excised 7 years before, and with a good result. During course of cure there was much trouble caused by burrowing of pus, and also for first 4 days there was a good deal of hæmorrhage.

6	F.	27	Machinist	Wrist	Thecal abscess subsequently opening the wrist and carpal joints	„	Joint disorganised	R.	Patient allowed her fingers to become stiff; she resisted passive movement as much as she was able to do.
7	F.	4	Child	Hip	Flexion and erosion of limb; large fluctuating swelling over great trochanter	„	Head and part of great trochanter found carious	D.	When first admitted a large abscess over great trochanter was evacuated by aspirator. She remained in hospital 4 months before excision had recourse to. After operation abscess after abscess constantly formed, and a few days before death (2 days) she was seized with convulsions, which continued on and off until death. P.M.—General tuberculosis attacking spleen, lungs, and kidneys; caries of femur, acetabulum.
8	M.	4	„	„	Slight shortening, with pain on walking; very little flexion	„	Caries of head of femur	C.	Erysipelas during cure. See Sp. Table.
9	F.	4	„	„	When admitted patient had only commencing disease of joint, but as no improvement occurred 5 months after she was operated upon	„	Necrosis and caries of head of bone	C.	Instrument fitted to support hip, as also a boot.
10	M.	5½	„	„	Pain on attempting to flex hip; resists movement; no sinus	„	Acetabulum bare; sequestrum found at junction of head and neck of femur; synovial disease as well	C.	Patient had been ill about 6 months.
11	M.	6	„	„	Shortening of limb; abscess over outer and back part of thigh; pain in hip	„	Not noted	C.	Leathern splint to support hip, and a boot.
12	M.	6	„	„	—	„	—	D.	See Sp. Table, Pyæmia, Case No. 2.
13	M.	7	School	„	Abscess connected with joint	„	Head of bone carious	R.	Excision, wound not quite healed.

SPECIAL TABLE II—*continued.*

No.	Sex	Age.	Occupation.	Joint affected.	State on admission.	Operation.	State in which joint found	Result	Notes, &c.
14	F.	7	Child	Hip	Sinus leading to carious joint	Excision	Head nearly destroyed	R.	Albumen in urine. Sent to Margate.
15	F.	8	School	„	Fibrous anchylosis between head of femur and upper edge of acetabulum; lordosis, abscess, flexion	„	Carious head of femur	C.	For the first month after operation the patient was kept back by the constant accumulation of pus about wound.
16	M.	11	„	„	Dislocation of femur; abscess in front of hip	„	Not noted	R.	This patient had had his knee excised 3 years before. Went to Margate.
17	M.	11	„	„	—	„	—	D.	See Sp. Table, Pyaemia, Case No. 7.
18	M.	12	„	„	Abscess about hip; pain, &c.	„	Head of bone carious; acetabulum	D.	This patient was a readmission from Margate. Five days after operation he was attacked by erysipelas about the wound, and this eventually carried him off. P.M.—Necrosis of upper end of femur, and also the lower end in connection with knee-joint. Two abscesses found in left lung, one of which seemed to be due to an infarct. No other deposits found.
19	M.	12	At home	„	Flexion, with swelling over back of joint; small sinus over great trochanter	„	Not noted	R.	Great improvement before he left. Excision wound not healed, however. Sent to Margate.
20	F.	51	Married	„	Dislocation on to dorsum ilii, $2\frac{1}{2}$ in. shortening; great inflammatory thickening of soft parts	„	Head and neck of femur carious and lying loose in abscess cavity	D.	Erysipelas 3 days after operation. P.M.—Chronic peritonitis matting intestines together; iliac abscesses: spleen, liver, and kidneys fatty.
21	M.	3	Child	Knee	Pain on pressing bone surfaces together; synovial thickening; no sinuses	„	Sub-articular caries	C.	Attacked by varicella and by erysipelas during cure. Good union, and able to get about easily.

22	M.	3½	”	”	Swelling, and but little pain	Excision, and amputation subsequently	Large abscess in front and on outer side of lower end of femur opening into joint; a large sequestrum in line of junction of epiphysis of femur just between condyles	C.	50 days after operation there was no union of bone surfaces, and child was wasting considerably. Amputation of lower third of thigh. Whole of lower epiphysis of femur found necrosed. 23 days after this it was suspected that an abscess over trochanter major had opened hip-joint, and amputation at hip-joint would have been done at once only the child was too weak. Free exit was given to the pus and a drainage-tube put in. He began rapidly to improve, and went out well.
23	M.	4	”	”	Flexion of joint with swelling, and a sinus discharging from inner side of joint	Excision	Synovial disease, with erosion of cartilage and caries of joint surfaces	R.	To Brighton. Some sinuses still discharging.
24	M.	4	”	”	Knee much contracted and swollen; had been attending as out-patient for some months; very little pain	”	Sub-articular caries of inner condyle of femur and inner head of tibia; synovial disease	C.	Previously an in-patient under the same surgeon.
25	F.	6	School	”	Synovial thickening; contraction of knee; rotation of tibia outwards	”	Synovial disease; cartilage becoming eroded; commencing caries of outer head of tibia	C.	Firm union of bony parts within 2 months.
26	F.	9	”	”	Patient had had joint in splint 2 years; flexion with effusion; pain well marked when pressure made over inner side of joint and on pressing patella against femur	”	Sub-articular caries of joint surfaces; perforation of cartilage by pin-hole points; sequestrum in head of tibia (inner) and in inner condyle of femur.	C.	Good union, and all sinuses, &c., closed.

SPECIAL TABLE II—*continued.*

No.	Sex	Age	Occupation.	Joint affected.	State on admission.	Operation.	State in which joint found	Result.	Notes &c.
27	M.	9	At home	Knee	Abscesses about joint, and also communicating with joint	Excision	Necrosed bone in inner head of tibia; femur secondarily affected	R.	For some months attempts were made to save the joint, but abscesses kept forming, and the leg was becoming necessarily exhausted. Went to Margate.
28	M.	9	School	„	General enlargement of bones of joint; effusion into joint; especial tenderness over inner head of tibia and outer condyle of femur	„	Not noted.	C.	Erysipelas during cure. See Sp. Table.
29	M.	9	„	„	Flexion of joint, with fixing of patella; pain over inner head of tibia; effusion	„	Sequestrum in inner head of tibia	C.	
30	F.	11	„	„	Readmission; synovial disease of joint; sinuses with pale granulations; pain very acute at intervals	„	Extensive synovial disease, with commencing erosion of cartilage; abscess behind joint running up into popliteal surface of femur; no disease of bones, which were, however, very vascular	R.	When she went out there were sinuses still discharging, and the granulations were of the pale, jelly-like character which occurs in lowly vitalized structures (strumous).
31	M.	11	„	„	Joint had been painful 2 years; came on after injury; knee swollen, red, and painful; abscess found on inner side of joint; pus evacuated; phthisical tendency	Amputation	Not examined	C.	

32	F.	11	Child	„	Readmission; synovial disease	Excision	Pulpy degeneration of synovial membrane; erosion of cartilage	C.	Rapid improvement in general health; locally, however, the healing was slow.
33	M.	14	School	„	Patient the subject of angular curvature in dorsal region; synovial disease of left knee	Amputation	Synovial disease; cratilage peeled off joint surfaces; commencing caries of condyles of femur	C.	Attacked by pleurisy. Stump not quite healed up. For the first 14 days it was feared he would have died; there was suspicious crepitation at apex of one lung. When he went out no lung mischief was detected.
34	F.	15	In service	„	Pain especially referred to inner condyle of knee; synovial swelling	Excision	Necrosed bone in inner head of tibia; cartilages eroded; synovial membrane pulpy	C.	Erysipelas whilst under cure. See Sp. Table.
35	M.	19	Carpenter	„	Very chronic case; knee had been bad 6 years; for 2 years had been unable to walk; joint swollen; pain well marked on pressure over inner head of tibia	„	Adhesions in joint; cartilages eroded; caries of bone surfaces; no sequestra	D.	Operation followed by formation of abscesses in thigh and round the excision wound; rigors and high temperature. A few hours before death other abscesses were found in neck, back, and one heel; also there was hæmorrhage from abscess cavity in thigh. P.M.—No secondary deposits in any viscera. Commencing phthisis at one apex.
36	M.	20	Divinity student	„	Joint swollen and painful; patient has a phthiical aspect; previous to amputation attempt made to evacuate fluid from joint by aspirator, but with no success, the substance being semi-fluid only	Amputation	Synovial disease; joint filled with caseous material; abscess in popliteal space and in front of lower end of femur	C.	Subsequently readmitted, the stump having become completely opened up. Reamputation had to be done, and with success.
37	M.	24	Brush maker	„	Swelling of joint; sinuses	„	Not noted	C.	Patient completely blind.

SPECIAL TABLE II—*continued.*

No	Sex.	Age.	Occupation	Joint affected.	State on admission.	Operation.	State in which joint found.	Result.	Notes, &c.
38	F.	39	Married	Knee	Suppuration in joint, which had been bad 8 months	Amputation	A large abscess running up back of thigh, nearly reaching groin; complete disorganisation of joint; necrosis and caries of bones	C.	Just 14 days after the amputation, the femoral artery had to be ligatured on account of secondary haemorrhage taking place into an abscess cavity in front of thigh. Bone became afterwards necrosed for about an inch. Patient, although slow in her recovery, eventually went out much improved in health.
39	M.	3	Child	Ankle	Ulceration and thickening of soft parts about ankle; sinuses	Partial excision	Carious end of tibia and fibula, slightly so of astragalus	C.	Operation performed by enlarging a sinus on the ankle on the outer side of joint and gouging away the diseased bone.
40	F.	9	At home	,,	Swelling of synovial membrane round ankle; strumous superficial ulceration of skin over outer side of joint; only slight pain; previous to amputation some months after, there was necrosed bone removed from astragalus	Symes' amputation	Not noted	C.	Stump not quite healed when she left.
41	M.	22	Labourer	,,	Synovial swelling below each malleolus	Excision, and subsequently amputation	Articular surfaces of bone surfaces eroded and carious	C.	Excision performed on May 3rd; attacked by erysipelas on the 17th; amputation on Nov. 1st. After the excision there was never any real improvement in the patient's health or in his local symptoms; no union occurred, and the discharge continued as-

									profuse as ever, and unless amputation had been done he would have died within a short period. He had a second attack of erysipelas after the amputation.
42	M.	24	Gardener	„	Admitted for strumous testicle, and also synovial disease of ankle; sloughing sore in connection with inner side	Partial excision, and subsequently Symes' amputation	External malleolus and astragalus removed in the first operation; sequestrum in astragalus head	R.	One month after excision it was found that amputation was absolutely necessary. Went to Margate.
43	F.	71	Widow	Tarsus	Abscesses connected with cuneiform bones	Symes' amputation	Caries and necrosis of cuneiform bones	C.	Not quite healed.

SPECIAL TABLE III.—*Pyæmia.*

No.	Sex.	Age.	Occupation.	Nature of case.	Operation, if any	Supposed time of access of pyæmia	Notes, &c.	Post-mortem notes.
1	F	15	Servant	Admitted with acute necrosis of tibia	Large abscess over necrosed tibia laid open	Within 4 days of death probably	Four days before admission the patient severely "twisted" her leg. Two days after accident she came to hospital, but was not admitted until 2 days later, and then it was found that there was a large abscess over tibia, and the bone bare. The day after admission she complained of pain in right arm; shoulder-joint not affected. Exploratory punctures made into right arm, which was much swollen; no pus found. Patient delirious during the last 3 days of life. Temperature on admission was 104·2°, and kept above 102° during the whole time. Highest temperature 106·2°. No rigors. Death 8 days after accident	Acute necrosis of tibia; acute periostitis of humerus; saphena and femoral veins normal; in one of venæ comites of right humeral there was found some pink, purulent material; axillary glands swollen; recent pleurisy of left lung; commencing patches of myocarditis; minute infarcts in kidneys; infarcts in both lungs over a large area.
2	M	6	Child	Disease of hip	Excision	About 10 days after the operation	At the operation there was a very large abscess about the hip-joint; the head of the femur and the acetabulum were carious. Ten days after operation the temperature became slightly raised, and the discharge from the excision wound was noticed to be especially fœtid, and also his breath was very offensive. Within 2 days after this bed-sores formed. Highest temp. noted was 103·8°. No rigors. Death in 5 days	Extensive abscesses in gluteal region, and also over acetabulum; upper end of femur necrosed; perforation of iliac bone; periostitis extending over shaft, especially on outer side; abscess extending along psoas muscle; numerous pyæmic abscesses in lungs and brain.
3	M	49	Corn-dealer	Contused and lacerated wound of buttock and perineum	None	8 days after accident	Admitted with an extensively contused and lacerated wound of buttock, caused by a railway accident. Temp. became raised 6 days after admission, and 2 days later he had two rigors; the next day one more; and the next two more. Highest temp. 104°. Carbolic injections used twice	All organs too decomposed for a proper examination; no purulent deposits found in lung.

4	M	44	Labourer	Compound comminuted fracture of tibia and fibula	Secondary operation	Probably 15 days after accident	Accident occurred by a trap going over his leg, and the bones were much comminuted. Soon after admission there was much suppuration, and the patient was in a very typhoid condition. The temperature from the commencement was high, but 14 days after admission the temperature was raised to 104°, and the next day the patient had a rigor. Seventeen days after accident the leg was removed at upper third. Three days after operation he had another rigor; the stump sloughy, and the discharge stinking. Rigors continued daily until death. Highest temperature noted was 106·4°	Pulmonary infarcts; deposits of pus about bases; suppuration behind pharynx, and at root of tongue.
5	F	19	Straw-hat maker	Sacral disease; abscess	Abscess laid open	Nothing to show its access	Abscess connected with caries of sacrum had been coming 7 months. On admission the abscess was laid open, and the cavity washed out with carbolic acid lotion. Patient sank from exhaustion apparently	Chronic lumbar abscess; caries of sacrum; pyæmic abscesses in lungs.
6	M	35	Engine driver	Crushed foot	Syme's amputation	21 days after accident	Admitted with crushed foot, and Syme's operation was immediately had recourse to. He went on well until three weeks had elapsed, and the stump was nearly healed. On the 21st day the leg became swollen, as also the stump; punctures were made, but no pus found. The next day he had a rigor, and a large abscess was opened in the back 2 days afterwards. Rigors continued until death on the 27th day after admission. Highest temperature 105·5°	Suppuration along femoral vein; secondary abscesses in lungs, spleen, and liver.
7	M	11	School	Disease of hip	Excision	About 15 days after operation	At operation the head of femur was carious, and there was a sequestrum in the neck of the bone; also the acetabulum necrosed. Fifteen days after operation the temperature was raised considerably, but it was only the day before his death that he had a rigor, profuse vomiting, and fœtid odour about him. Typhoid condition. Highest temperature 105·2°	Multiple abscesses in right lung, and also in left; no abscesses in joints; foul condition of wound of hip; inflammation in glands of iliac region.

SPECIAL TABLE III—*continued.*

No.	Sex.	Age.	Occupation.	Nature of case	Operation, if any.	Supposed time of access of pyæmia	Notes, &c.	Post-mortem notes
8	M	18	Labourer	Disease of knee	Amputation lower third thigh	18 days after the operation	A delicate youth, admitted with advanced disease of the knee-joint; amputation at lower third of thigh (subarticular caries of inner head of tibia). The day after operation there was considerable hæmorrhage, which much exhausted the patient. On the 18th day after the operation his temperature, which for many days had been more or less normal, suddenly rose to 107·2°, and was accompanied by a rigor. The stump had been nearly healed for about a week. Rigors occurred at short intervals during the 6 remaining days of his life. He was also much weakened by profuse perspirations, and he was more or less unconscious during the same time. Highest temperature noted was 107·2°, but during each rigor the temperature was high	Necrosis of end of stump of femur; osteo-myelitis and acute periostitis of greater part of shaft; thrombosis and phlebitis of femoral vein; swelling of glands in groin; secondary abscesses in lower lobes of both lungs; pus in femoral vein.
9	F	52	Married	Foul ulcer	Amputation at upper third leg	There seemed to be some symptoms of blood-poisoning when the patient was admitted, 21 days before death	Patient admitted with a very foul and sloughing ulcer of leg, and in a very typhoid condition. From the first it was doubtful whether she could live. Amputation was performed 6 days after admission. The stump after the first day never looked healthy. She only had one rigor, and that 9 days before death. Highest temperature 104·4°	Pyæmia; deposits in lungs.
10	M	45	Beer bottler	Compound comminuted fracture of both legs	Secondary amputation lower third left thigh 23	Probably 11 days after accident	Both legs were broken by direct violence; compound fracture of tibia and fibula of right leg; and compound comminuted fracture of left tibia, and the soft parts of this	Pyæmia; arteries normal ligature; not yet separated; small abscesses along the sheaths of the veins for about two inches up the stump;

					days after accident		leg were much lacerated and contused. Both limbs were put up in Neville's splints, and the wound of right leg closed with collodion. Eleven days after admission the soft parts of left leg were in a state of suppuration—fœtid pus. Twenty-two days after admission the patient had a rigor, and temperature, which from the first was never lower than 100°, ran up to 107·2°. Amputation performed next day; hæmorrhage from stump 2 days after; no actual improvement in patient. Rigors occurred frequently up to time of death, 8 days after first rigor. Highest temperature 107·2°, Variations of temperature very characteristic	no osteo-myelitis or periostitis; acute pleurisy with dry exudation, especially over the lower lobes of lungs, in which were some pyæmic abscesses; no other abscesses elsewhere.
11	M	36	Ticket collector	Railway smash of both legs	Amputation above knee in the right limb, and the left below the joint	About 33 days after admission	Both stumps were almost healed before any bad symptom appeared. On the 33rd day he had a rigor lasting 35 minutes; this rigor followed by sickness. Temperature not more than 102·8°. Patient at this time had a bed sore over sacrum, which was discharging pus. The stump of right side was opened up, as it was swollen, but no pus found. Swelling of stump, however, increased, and it was evident that there was osteo-myelitis of femur. Four days after first rigor, as these had been repeated, the right stump was examined whilst the patient was under ether; periosteum loose and bone necrosed. About 3 inches of femur removed, and an abscess cavity in bone was opened, femur then divided higher up, where the bone was healthy. Rigors, however, continued, and the right thigh remained enormously swollen. Blood examined just before death showed a large quantity of leucocytes. Highest temperature 104·3°	? Pyæmia. There were no secondary deposits found in any viscus. Extensive suppuration in femoral vein for about 4 inches, and commencing at end of stump; bony end of stump plugged with stinking, semi-solid, purulent material.

SPECIAL TABLE III—*continued.*

No.	Sex	Age	Occupation	Nature of case	Operation, if any	Supposed time of access of pyæmia.	Notes, &c.	[illegible]
12	M	18	Bottle cleaner	Cellulitis of forearm	Incisions	Admitted in a very typhoid condition	During his stay in hospital, extending over a period of 18 days, his temperature remained high. He only had one actual rigor with a temperature of 105·2°. Previous to admission he had injured his hand through the bursting of a soda-water bottle. Two days before death he complained of acute pain in one shoulder, and in his right thigh. The original wound in hand had almost healed before admission. Highest temperature 105·2°	Pyæmia. No post mortem allowed.
13	M	38	Hawker	Extravasation of urine	Perineal section	14 days after admission	Admitted with extravasation of urine following upon stricture; in a feeble condition. Ten days after admission phlebitis of veins in both legs; temperature at this time much raised. Four days after this he had a rigor. These rigors were repeated every day until death. Pain in right shoulder noticed just before death. Highest temperature 105·3°. He had diarrhœa ocasionally	P.M.—No stricture of urethra, and no sign of inflammation about the tissues of that part; an orifice communicating with the perineum externally, and the urethra internally, just in front and to the right side of corpus spongiosum; recent cystitis; a few commencing spots of suppuration in substance of kidneys; recent broncho-pneumonia in lungs, but no pyæmic abscesses found in them.
14	M	54	Labourer	Necrosis of femur	Removal of sequestrum	5 days after operation	Sequestrum removed. Two days after operation sickness, and 5 days after he had a rigor. Discharge from wound stinking. Phlebitis of saphena minor vein of left leg. Glands in groin inflamed. Rigor repeated day before death. Highest temperature 105·8	Secondary abscesses in lungs.
15	M	33	Railway guard	Compound fracture of tibia and fibula	Amputation, secondary, 9 days after admission	? How long	On admission the patient, who was of an exceedingly nervous temperament, had his leg placed in a Neville's splint. Two days after the discharge was very fœtid. Inflammation of limb became more violent. Incisions and counter-incisions made. Ankle-joint became involved in the inflammation. Amputation at upper third of leg. No rigors. Highest temperature 105.2°, but during whole time of admission it was over 102	Pyæmic deposit along hepatic vein on surface of right lobe of liver. No other deposit found.

16	F	35	Married	Ruptured perineum	Operation for	About 6 days after operation	Six days after operation patient became delirious, high temperature, and was in a very typhoid condition. Inflammatory swelling at back of one hand. Whole of the perineum broke down again. Blood examined about 24 hours before death. Numerous white corpuscles in each field examined. No change in red cells	No post mortem.
17	F	21	Servant	Disease of sacro-iliac joint	Sequestra removed	?	Readmission.—Patient in hospital 156 days. Several operations performed, and twelve days before death an attempt was made to relieve the patient, but profuse hæmorrhage prevented its being continued, and patient gradually sank. Never any rigor. Temperature principally that of hectic. Highest temperature 105°	Caries of sacro-iliac joint; abscess in gluteal region, and in iliac fossa; secondary affection of hip and femur; amyloid degeneration of liver, spleen, and mucous membranes; fatty kidneys; pyæmic deposits in lungs.
18	M	19	Cook	Disease of ear	None	Not known	Otorrhœa since childhood from right ear. On admission was conscious, but soon became delirious. Double internal strabismus. No hemiplegia. Delirium became wild. Ice applied. Temperature 104°. Transferred to medical ward, where he died the same evening	P.M.—Thrombosis of left lateral sinus; softening of clot; pyæmic abscesses in lungs; acute double pleurisy.
19	M	31	Labourer	Gangrene of foot due to thrombosis of femoral artery following upon typhoid fever	Amputation at upper third leg	Not known	From time of operation until his death, 42 days afterwards, the patient was more or less delirious, and his temperature raised greatly. He never had any rigor, but during last three days of life perspirations were present, and the temperature during the last 48 hours was over 103°; the highest registered was 105°. Stump was nearly healed	P.M.—Abscess in left sterno-clavicular joint; none elsewhere; vena cava near the heart was occupied by masses of greenish clot of cheesy consistence, not filling the vein, but attached to posterior wall; both common iliacs occupied by firm, discoloured congula; left bronchial artery showed remains of old thrombi; right stump, the end of tibia necrosed; knee joint contained some flaky lymph; no swelling of thigh. Round the femoral vein was an abscess cavity containing a greenish pus, and extending amongst muscles of thigh.

Special Table III—*continued.*

[illegible]	[illegible]	[illegible]	Occupation	Nature of case	Operation, if any	Supposed time of access of pyæmia.	Notes, &c.	[illegible]
20	F	36 ?	Married	Abscess involving knee	Amputation lower third thigh	Probably before admission	Patient on admission was very prostrate, and suffering from hectic. Abscess probably began in structures round the joint, and subsequently involved it. Amputation performed on 5th day after admission. Discharge from stump was very fœtid on third day after operation. Temperature over 103°. Diarrhœa and vomiting 2 days before death. Highest temperature 105°. Death 6 days after operation.	P.M.—Phlebitis of femoral vein; sheath of femoral artery infiltrated; shoulder-joint filled with pus, and no other disease of joint; patches of broncho-pneumonia; saphena and profunda veins contained softened clot. Patient was probably quite 50 years old.
21	M	36	Painter	Depressed fracture of vault of skull	Trephined	About 4 days before death	Admitted with depressed fracture of parietal bone. No symptoms. Trephined on admission. Temperature became raised together with rigor 7 days after, and patient became drowsy. Facial paralysis 2 days after this. Highest temperature 104·4°. Death on the 11th day	P.M.—Arachnitis; small spicules of bone sticking into dura mater; very small mass of extravasation between bone and dura mater, and extensive purulent inflammation of membranes; secondary abscesses in lungs; phlebitis of left lateral sinus.
22 *	M	27	Groom	? Strumous ulceration of lip and palate	None	About 10 days before death	Patient admitted with deep ulceration of upper lip and hard palate, also a swelling over front of metatarsus of right foot. Remained in a chronic condition from the time of admission on March 5th until the commencement of July, when the temperature became much raised (but with no rigor), and on the 11th of July it was noticed that his face was covered with a pustular eruption. His joints, viz. ankles and knees, swollen, but not tender, and over the middle phalanges of little and ring fingers a swelling. Some of the pustules on the forehead	P.M.—Made 4½ hours after death. Numerous pustules embedded in the inflamed tissues about face. On cutting into the inflamed tissues there were multiple points of suppuration, also swellings over tibia, and little finger presented similar appearance on section; multiple points of suppuration amongst fibres of deltoid and pectoral muscles; no abscesses in any joints. On surface of both lungs, as well as in the interior.

							had become ulcerated. Blood examined. No bacteria. Thin and watery. On the 13th fluctuation in swelling over middle phalanx of little finger. Right shoulder painful and swollen. Patient conscious. Respirations hurried. Highest temperature 104°. No rigors. Before death the skin and subcutaneous tissues about the right clavicle and in subpectoral regions became swollen and painful. Also tissues about the left tibia just in front at upper third	there were numerous pale nodules with congested zones, and the patches varied from size of a small pea to half an inch in diameter; on section they presented a caseous appearance, and seemed to be made up of multiple points of suppuration; also there was a beautifully-defined, tree-like growth in both lungs, extending from the root inwards, consisting of fibroid tubercle, in some parts commencing to caseate; no deposits in spleen, liver, kidneys. In left groin a puckered scar of an old abscess, the tissues of which, on section, were infiltrated with pus. The post-mortem appearances presented by the state of the skin, and more especially the condition found in the lungs, were very like those of farcy, and not genuine pyæmia. There was no history, and no suspicion before death of the patient being infected by farcy, and therefore the case is placed under the head of struma followed by pyæmia.

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* Post-mortem appearances gave rise to a suspicion of its being a case of farcy, but previous history did not corroborate this.

SPECIAL TABLE III.—*Pyæmia.*

Month.	Alexandra.	Surgeon.	Elizabeth.	Surgeon.	Albert.	Surgeon	Edward.	Surgeon.	Leopold.	Surgeon.	Henry.	Surgeon.	Total.
January .	...	...	...	...	1	Jones	...	...	...	...	...	...	1
February .	...	...	1	Mason	...	...	...	...	...	...	...	...	1
March . .	...	...	1	MacCormac	...	...	1	Croft	...	...	...	...	2
April . .	...	...	1	,,	...	...	1	,,	1	Mason	...	...	3
May . .	...	...	...	...	...	...	1	Mason	...	...	...	...	1
June . .	...	...	...	...	1	Jones	1	Croft	...	...	...	...	2
July . .	...	...	1	Mason	1	Mason	1	,,	...	...	...	...	3
August . .	...	...	...	...	1	Jones	...	...	...	...	1	MacCormac	2
September .	...	...	...	...	...	...	...	...	2	MacCormac and Mason	...	...	2
October .	1	Croft	...	...	...	...	2	Mason	..	...	...	...	3
November .	...	...	1	MacCormac	...	...	...	...	1	MacCormac	...	...	2
December .	...	...	...	...	...	...	...	...	...	...	...	...	...
Total . .	1	...	5	...	4	...	7	...	4	...	1	...	22

SURGEONS.

		Cases.
Mr. Jones	had	3
,, Croft	,,	5
,, Mac Cormac	,,	6
,, Mason	,,	8
		22

Mem. 1 case of septicæmia has been counted as a case of pyæmia. (*Note* by Mr. Croft.)

Note.—It is often difficult, and sometimes impossible, to define septicæmia from pyæmia (Surgical Registrar.)

Special Table IV.—*Erysipelas admitted.*

No.	Sex.	Age.	Occupation.	Nature of previous disease or injury.	Occurrence after injury.	Parts attacked.	Treatment.	Result.	Remarks, post mortem, &c.
1	M	4	Child	No special cause, apparently idiopathic	Not known	Extending over lumbar regions and on left side of chest, especially at back	Liq. Amm. Acetat., ʒss; Ferri Cit., gr. iii, t. d. Lotio Plumbi	D.	Phlegmonous erysipelas. P.M.—Acute tuberculosis; broncho-pneumonia of right lung at base.
2	F	14	At home	Necrosis of frontal bone; sinuses	Could not be ascertained	Frontal region	Tinct. Ferri Perchlor. ♏x, t. d. Cat. Lini.	C.	Patient deaf and dumb; history of syphi- on father's side.
3	F	18	In service	Punctured wounds of ears for ear-rings	14 days	Left side of face	Tinct. Ferri Perchlor. ♏x, t.d. Lot. Plumbi	C.	
4	M	21	Warehouseman	Contusion of foot	2 or 3 days	Leg from knee to ankle	„ „	C.	
5	M	22	Railway porter	Contusion of finger	3 days	Forearm	Cat. Lini.	C.	A second attack of erysipelas one month after admission.
6	F	26	Washing	3 weeks before admission sustained a scalp wound	2 „	Face	Lotio Plumbi	C.	
7	M	29	Bricklayer	Sinus connected with lower jaw	6 „	„	„	C.	
8	M	30	Drayman	Severe contusion of leg	7 „	Thigh and hip	Incision. Amm. Carb., gr. v; Dic Cinch., ℥j, t. d.; brandy	D.	Phlegmonous erysipelas; when admitted was in a typhoid condition, and was delirious; death in 5 days. P.M.—Right broncho-pneumonia; congestion of both lungs.
9	F	36	Married	Small wound on nose	1 day	Face	Tinct. Ferri Perchlor. ♏x, t.d. Lot. Plumbi	C.	
10	M	36	Barman	Previously had a blister over the elbow, which he had punctured	3 days	Arm, forearm, and hand	Incisions	C.	
11	F	37	Hawker	Scirrhus of breast, which was ulcerated on surface	A few days	Chest and abdomen	Lotio Plumbi	R.	Tumour of breast not suitable for operation.
12	M	37	Greengrocer	Slight graze on elbow	3 days	Forearm and arm	W. W. D.	C.	

SPECIAL TABLE IV (*continued*).

No.	Sex.	Age.	Occupation.	Nature of previous disease or injury.	Occurrence after injury.	Parts attacked	Treatment.	Result.	Remarks, post-mortem, &c.
13	M	38	Labourer	Attacking stump of former amputation of leg	A few days	Of stump	Lotio Sodæ Chlor.	C.	
14	M	40	Hairdresser	Lacerated wound of hand, caused by striking against a tooth	3 days	Of hand	Incisions	C.	
15	F	40	Servant	No cause apparent; no wound	2 days before admission	Face	Tinct. Ferri Perchlor. ♏x, t. d.	C.	
16	F	41	Married	Injury to thumb, followed by necrosis of ungual phalanx 14 days before admission	Not ascertained	Arm and forearm	Incisions. Tinct. Ferri Perchlor., ♏xl, t. d.	D.	Patient had been a hard drinker; delirious on admission; the erysipelas was very phlegmonous, and much sloughing occurred; muscles stripped. No. P.M.
17	M	42	Cab driver	Scalp wound caused 21 days before admission	19 days	Face	W. W. D.	C.	
18	M	42	Sawyer	No cause	Not noted	Over chest	Quinine	C.	
19	M	47	Shoemaker	...	...	Arm	Tinct. Ferri Perchlor. ♏xv. Lotio Plumbi	C.	
20	M	48	Bottle-dealer	Grazed his knee 9 days before admission	4 days	Leg and thigh	Collodion and cotton wool	C.	
21	M	49	...	Scalp wound 6 days before admission	4 "	Face	Cat. Lini.	D.	Delirium up to time of death. P.M.—Nothing special.
22	M	49	Labourer	Contusion of hand by a rusty piece of iron	Not noted	Arm, forearm, and hand	" brandy, &c.	D.	Very typhoid condition; death in 4 days. P.M.—Nothing special.
23	M	51	"	No special cause	...	Lower third, thigh	Incisions. Tinct. Ferri Perchlor., ♏xv	C.	Considerable sloughing of cellular tissue.
24	F	54	Widow	No apparent cause	10 days	Leg	Lotio Plumbi	C.	
25	M	60	None	Contused wound over tibia	Not noted	"	Cat. Lini. Incision	R.	Patient being insane was removed to an Asylum.
26	F	65	Nurse	No cause	Not known	"	Lotio Plumbi	C.	Very cutaneous.
27	F	43	Charwoman	Scalp wound	2 days	Face	"	C.	
28	M	40	Surveyor	No cause	Not known	Leg	...	D.	Next morning. Phlegmonous erysipelas.
29	F	34	Married	Cellulitis of right arm	7 days before admission	Forearm	Hot fomentations	C.	

SPECIAL TABLE IV.—*Erysipelas admitted.*

Month.	Anne.	William.	Henry.	Total.
January	...	1	...	1
February	4	2	...	6
March	2	...	...	2
April	...	...	...	...
May	2	1	...	3
June	1	1	...	2
July . . . . , .	1	1	...	2
August	1	1	...	2
September	...	5	1	6
October	1	...	...	1
November	...	2	...	2
December	1	1	...	2
Total	13	15	1	29

Surgeons.—

Messrs.	Jones	had	8	cases.
„	Croft	„	7	„
„	Mac Cormac	„	5	„
„	Mason	„	9	„
			29	

Special Table V.—*Erysipelas arising in the Wards.*

No.	Sex.	Age.	Occupation.	Nature of previous disease or injury.	Occurrence after injury.	Part attacked.	Treatment.	Result	Notes, &c.
1	M.	1¾	Infant	Contusion of leg	11 days	Leg	Poultices	D.	Death from pneumonia on 17th day.
2	M.	3	Child	Disease of knee, excision	147 ,,	Knee	Lotio plumbi	C.	In 11 days.
3	M.	4	,,	,, hip, excision	12 ,,	Hip and thigh	Iron	C.	In 22 days.
4	M.	4	,,	Lacerated wound of knee	16 ,,	Knee	...	C.	In 9 days.
5	M.	5	,,	Burn of arm and side of chest	154 ,,	About the wound	Lotio plumbi	C.	In 54 days. Subsequently a second attack. Both in 1876.
6	F.	6	,,	Scalp wound	92 ,,	Scalp	,,	C.	In 12 days.
7	M.	8	,,	Old excision of hip	...	Hip	...	C.	In 18 days.
8	M.	9	School	Disease of knee, excision	97 ,,	Knee and thigh	...	C.	In 18 days.
9	M.	12	,,	,, hip, excision	6 ,,	Knee	...	D.	In 33 days. See Special Table, Excisions, No. 15.
10	M.	12	None	Old excision of hip	111 ,,	About hip	Flexile collodion and W. W. D.	D.	In 27 days. P.M.—Carious end of femur; acetabular disease; consolidation of right lung, tubercular; as also similar patches in left lung; amyloid spleen and liver.
11	M.	12	School	Removal of sequestrum from tibia	11 ,,	Leg	...	C.	In 8 days.
12	M.	13	Labourer	Scalp wound	3 ,,	About side of face	Iron	C.	In 20 days.
13	F.	15	In service	Disease of knee, excision	54 ,,	About excision wound	,,	C.	In 25 days.
14	M.	18	Sailor	Disease of tarsal joints	3 ,, after admission and again 101 days after	About ankle	,,	C.	First in 16th, second in 11 days.
15	M.	18	Carman	Lacerated wound of leg	3 days	Leg	Quinine and iron	C.	In 12 days.

16	M.	22	Labourer	Disease of ankle	14 days	Ankle	Collodion and wool	C.	In 15 days; subsequently another attack cured in 27 days.
17	M.	24	Compositor	Abscess of leg, incision	216 „	Foot and leg	...	C.	In 3 days.
18	M.	28	Carpenter	Necrosis of lower jaw, sequestra removed	98 „	Face	...	C.	In 11 days.
19	M.	29	...	Ruptured urethra, perineal abscess, incision	10 „	Of face	Iron and nitric acid	C.	In 23 days.
20	M.	33	Carpenter	Scalp wound	14 „	Neck and face	Flexile collodion and wool	C.	In 13 days.
21	M.	34	'Bus driver	Ulcer of leg, amputation	8 „	Stump	...	D.	In 3 days. P.M.—Liver, spleen, and kidneys soft; hæmorrhages on surface of pericardium.
22	M.	34	Printer	Primary excision of elbow	6 „	Excision wound and forearm	...	C.	In 25 days.
23	M.	34	Engraver	Fistula in ano, incision	41 „	Buttock	...	C.	In 34 days.
24	F.	34	Married	Serpiginous ulcer over knee	28 „	Knee	...	C.	In 13 days.
25	M.	38	Brass-finisher	Scald of thigh	2 „	Thigh	Cat. lini	C.	Constant attacks of erysipelas during cure.
26	M.	40	Labourer	Hydrocele	? 3 „	Scrotum	Incisions	C.	In 57 days.
27	M.	42	Cabman	Perineal abscess and fistula	...	About perineum	...	D.	For post mortem see diseases of genito-urinary system.
28	M.	44	Labourer	Compound fracture of leg, fractured ribs and lower jaw	37 „	About seat of fracture of leg	Nothing special	C.	Patient attacked again with erysipelas nearly 2 months after the first attack.
29	M.	46	Labourer	Polypus nasi	23 „	Nose and face	Iron	C.	In 8 days.
30	F.	46	Married	Scirrhus breast, operation	6 „	Operation wound	Salines, lotio plumbi	C.	In 32 days.
31	F.	47	Married	? Lupus of face	15 „	Face	Lotio plumbi	C.	In 12 days.
32	M.	47	Labourer	Contusion of face	11 „	Face	Iron	C.	In 16 days.
33	M.	51	Carpenter	Abscess of leg, amputation	34 „	Stump	„	C.	In 41 days.
34	F.	51	Married	Disease of hip, excision	3 „	Excision wound	...	D.	In 11 days. See Special Table, Excisions, No. 17.

SPECIAL TABLE V—*continued.*

No.	Sex.	Age.	Occupation.	Nature of previous disease or injury.	Occurrence after injury.	Part attacked.	Treatment.	Result.	Notes, &c.
35	F.	59	Married	Scirrhus breast, operation	5 days	Operation wound	Iron	D.	In 5 days. P.M.—Broncho-pneumonia; scirrhus nodules in liver, granular kidneys.
36	M.	60	Ex-captain in army	Amputation of great toe	3 ,,	About wound	,,	C.	In 35 days.
37	M.	66	Confectioner	Poisoned wound of fingers, amputation	3 ,,	,,	,,	C.	In 15 days.
38	M.	70	Blacksmith	Scalp wound	5 ,,	Scalp	,,	C.	In 44 days. He had a relapse during the time.
39	F.	71	Married	Epithelioma on forehead, removal	7 ,,	Face	...	C.	In 34 days. This includes a relapse.

* SPECIAL TABLE V.—*Erysipelas arising in the Wards.*

Month.	Alexandra.	Elizabeth.	Victoria.	Albert.	Edward.	Leopold.	Total.
January	...	...	...	...	1	1	2
February	2	...	...	1	1	1	5
March	1	...	...	...	2	...	3
April	...	...	...	...	1	...	1
May	1	...	1	...	1	...	3
June	...	...	1	...	...	...	1
July	...	...	...	3	1	...	4
August	2	1	...	1	2	2	8
September	...	...	...	...	2	2	4
October	...	...	...	...	...	...	...
November	1	1	...	1	3	3	9
December	...	...	...	...	1	...	1
Total	7	2	2	6	15	9	41†

* Compare this Table with Table IV.

† There were only 39 patients, but 2 of them had erysipelas twice, each having returned to the General Ward previous to second attack.

	Surgeons.		
Messrs.	Jones	had 11	cases.
„	Croft	„ 15	„
„	Mac Cormac	„ 11	„
„	Mason	„ 3	„
„	Wagstaffe	„ 1	„
		41	

Special Table VI.—*Medical Diseases developed during Surgical Treatment.*

No.	Disease	Sex.	Age.	Admission for.	Time of accession after admission	Remarks, &c.
1	Measles	M.	4 days	Double harelip	25 days	Transferred to special ward.
2	,,	M.	6 weeks	Single harelip	69 ,,	Transferred to the special wards.
3	,,	M.	4 months	,,	23 ,,	Ditto.
4	,,	M.	1¼ years	Strangulated hernia	25 ,,	Ditto.
5	,,	F.	1¼ ,,	Scald	28 ,,	Ditto.
6	,,	M.	2½	Disease of hip	43 ,,	Ditto.
7	,,	F.	3	,, ,,	41 ,,	Ditto.
8	,,	M.	3	Umbilical fistula	109 ,,	Ditto.
9	,,	F.	4	Disease of hip	10 ,,	Second attack within one month. Transferred to the special wards.
10	,,	M.	4	,, ,,	2 ,,	Second attack within a year. Transferred to the special wards.
11	,,	M.	5½ days	Fractured femur	9 ,,	Transferred to special ward.
12	,,	M.	6	Disease of hip	74 ,,	Ditto.
13	Varicella	M.	2	Fractured femur	20 ,,	Ditto.
14	,,	M.	2	Vesical irritation	1 ,,	Ditto.
15	,,	M.	2	Spinal curvature	29 ,,	Ditto.
16	,,	F.	2½	Disease of knee	28 ,,	Ditto.
17	,,	F.	3	,, ,,	28 ,,	Ditto.
18	,,	F.	3	,, hip	22 ,,	Ditto.
19	,,	M.	3	,, knee	22 ,,	Ditto.
20	,,	M.	3½	Lacerated wound	30 ,,	Ditto.
21	,,	M.	5	Disease of knee	7 ,,	Ditto.
22	Scarlet fever	M.	8½	Glandular tumour of neck	16 ,,	Ditto.
23	Pertussis	F.	2½	Burn	78 ,,	Ditto.
24	Acute rheumatic fever	F.	20	Contusion	3 ,,	Sent to physician's ward.
25	Pneumonia	M.	5	Scalp wound	19 ,,	
26	Acute pleurisy	F.	23	Adenoma of breast	22 ,,	Sent to physician's ward.
27	Empyema	M.	19	Axillary abscess	69 ,,	Tapping of chest.
28	General tuberculosis	F.	4½	Fatty tumour	40 ,,	Death on seventh day after accession of symptoms.

29	Acute mania	M.	60	Erysipelas	On admission	To an asylum.
30	Delirium tremens	M.	34	Fracture of patella	2 days	Bromide of potassium and chloral given in frequent doses. Cured.
31	„	M.	34	Fistula in ano	9 „	Ditto.
32	„	M.	35	Fracture of tibia and fibula	A few hours	Ditto.
33	„	M.	37	Traumatic synovitis	2 days	Ditto.
34	„	M.	37	Lacerated wound, involving knee-joint	3 „	Death on the second day after accession.
35	„	M.	39	Hæmorrhoids	2 „	Treated with bromide of potassium and chloral. Cured.
36	„	F.	47	Contusion of scalp and face	2 „	Ditto.
37	„	M.	49	Comminuted fracture of femur	6 „	Death in 24 hours after accession.
38	Bronchitis	F.	42	Femoral hernia	7 „	
39	Double pneumonia	M.	58	„ „	2 „	Death next day.

APPENDIX TO SURGICAL REGISTRAR'S REPORT.

STATISTICS OF THE EYE DEPARTMENT.

By S. BERNAYS.

The following table shows the numerical variations in the number of new patients, attendances, in-patients, and operations from 1873 to 1877 :

	New patients.	Attendance.	In-patients.	Operations.
1873............	1665	25154	130	162
1874............	2113	33217	123	224
1875............	2445	31513	164	232
1876............	2535	30541	137	197
1877............	2721	26992	125	180

This table shows under a few general headings the comparative frequency of one set of diseases as regards another. These numbers refer to the year 1877 :

Diseases of eyelids	273
„ conjunctiva	586
„ cornea	389
„ lachrymal sac	83
„ iris	80
„ lens	114
Refraction cases	687
Injuries	96
Diseases of deeper membranes	178
„ occular muscles	84
Glaucoma	23
Special cases	45

The result of these cases cannot be put under the usual headings of *cured, relieved,* and *not relieved.* This division, which for general cases is already rather vague, could not in any correct way enable us to determine the boundary lines of the results of ophthalmic diseases.

REPORT OF

THE OBSTETRICAL DEPARTMENT

FOR 1876.

By ROBERT CORY, M.B.

The Resident Accoucheurs during the year were Messrs. C. C. Smith, Wm. Morgan, Thomas Millman, and B. Pitts.

From the 1st of January, 1876, to the 31st of December, 1876, both dates inclusive, 1615 women were attended. Of these 1602 resulted in single births and 13 in twins; 3 of the former and 1 of the latter were cases of abortion.

In the following table the presentations are classified:

	Among the 1615 single births.	Among the twin births.	Total.
Vertex	1565	16	1583
Breech	19	5	24
Superior extremities, including the shoulder	9	1	10
Inferior extremities	2	1	3
Face or forehead	4	0	4
Head and arm	0	1	1
Abortions	3	1 1	5

The age of the youngest mother among the 1615 cases was 17 and that of the oldest was 47. The number of births at the different ages was as under:

Age of mother		No. of births.	Age of mother		No. of births.
17	...	1	33	...	55
18	...	21	34	...	61
19	...	47	35	...	55
20	...	61	36	...	47
21	...	82	37	...	37
22	...	90	38	...	43
23	...	111	39	...	29
24	...	107	40	...	28
25	...	102	41	...	12
26	...	95	42	...	20
27	...	100	43	...	13
28	...	91	44	...	4
29	...	70	45	...	3
30	...	99	46	...	1
31	...	52	47	...	2
32	...	76			

Of the 1615 cases attended,

233	were	1st	labours.	62	were	9th	labours.
267	,,	2nd	,,	41	,,	10th	,,
247	,,	3rd	,,	22	,,	11th	,,
207	,,	4th	,,	8	,,	12th	,,
187	,,	5th	,,	2	,,	13th	,,
117	,,	6th	,,	8	,,	14th	,,
121	,,	7th	,,	3	,,	15th	,,
90	,,	8th	,,				

The forceps were used in 68 cases; the reasons given for their use were as follows:

Delay at the brim . .	16	3 from large heads. 3 ,, small pelvis. 2 ,, faulty position of heads. 1 ,, polypoid growth on anterior lip. 7 ,, not stated.
Delay at the outlet . . .	17	13 of these were primiparæ.
Tedious	35	

There were 28 cases of primiparæ among these 68 cases, which gives a percentage of 41·2; the general percentage of primiparæ among the 1615 cases being 14·4. There were no maternal deaths. The perinæum was stated to have been ruptured in 7 of the cases, and post-partum hæmorrhage (not severe) to have occurred in 3. Of the children, 32 were males, 34 females; the sex of 2 was not stated; 6 were stillborn, or 8·8 per cent. The cases in which this happened were further complicated—in 1 by placenta prævia, in 1 by a polypoid growth on anterior lip of the cervix, and in 1 the fœtus had been dead some days before birth.

Version was resorted to in 10 cases, all of which were cases of presentation of superior extremities; 9 of the children were stillborn, but all the mothers recovered.

The breech presented nineteen times among the single births, giving a proportion of 1 in 84·3 cases. In 8 of these cases the children were stillborn, *i. e.* 1 child in every 2·4, or 42·1 per cent. One of these children had hydrocephalus.

In the 9 cases of the presentation of the upper extremitie occurring among the single births 8 of the children were stillborn.

The following table gives the particulars of the cases of placenta prævia:

No.	Age.	Confinement.	Sex.	Result to Child.	Treatment.	Result to Mother.
1961	42	10th	F	D	Separation of placenta; forceps	Recovered.
2226	32	2nd	M	L	Not stated	Recovered.
3011	34	8th	F	D	Turning	Recovered.
5	39	10th	M	L	Not stated	Recovered.

The following table gives the cases in which the uterus was injected with a solution of ferric chloride; they are altogether 4 in number, all of which made good recoveries. The solution used was the Liquor Ferri Perchloridi Fortior, and the strength mentioned in the table refers to this as mixed with water in the proportion named.

No.	Age.	Confinement.	Date.	Complication.	Result to Mother.	Strength of Solution.	Condition of Mother.
1665	29	...	Feb. 6	Tw	…overed …hout bad symptom	Not stated	
2160	...	...	June 23		…le slow … very	1 in 3	Uterus failed to contract.
2225	21	1	July 25		red	Not stated	Severe hæmorrhage.
						„	Ditto.

Three maternal deaths occurred dı
cent.; this is an exceptionally low year, or ·185 per
death, however, took place in the lrate. One other
confinement, and was due to phthisitwo months after
from a vesico-vaginal fistula, the reis woman suffered
this account, therefore, the death ong her labour. On
the death-rate would … 31 … 52 …-perhaps to be included;
32 … then be ·247.

The following table gives an outline of the cases which are more fully reported at the end of this report:

No.	Age.	Confinement.	Sex of child.	Result to Child.	Cause of Death.	Date of Confinement.	Date of Death.
1489	37	9th	M	D	Peritonitis	Jan. 21	Feb. 1
1771	28	2nd	F	D	Peritonitis	Feb. 16	Feb. 20
2134	21	1st	F	L	Peritonitis	June 9	June 18
1681	25	1st	?	D	Phthisis	Mar. 18	June 28, 1876

Among the 1615 cases there were 13 cases of twins and 4 cases of abortion, 3 occurring among the single births and 1 among the twins, hence the number of presumably viable children born was 1615 + 11 — 3 = 1623.

Among these there were 61 stillborn, being in the proportion of 1 in 26·6, or 3·76 per cent.

The characters of the labours in which they occurred are given below:

Natural labours	27
Premature labours	4
Forceps cases	6
Presentation of upper extremities, including shoulders	5
Presentations of lower extremities	1
Breech presentations	7
Twins	6
Prolapse of cord	2
Placenta prævia	1
Craniotomy	2

The number of vertex presentations among the 61 stillbirths was 47.

The following table gives particulars of the cases of twin births:

No.	Age.	No. of Confinements.	Date of Birth.	Sex.		Result to Mother.	Result to Child.		Presentation.		Placenta.
				1st.	2nd.		1st.	2nd.	1st Child.	2nd Child.	
1416	42	9th	March 15	M	M	R	D	D	Natural	Natural	?
1444	34	8th	Jan. 7	M	M	R	L	L	?	?	?
1513	31	7th	Jan. 30	M	M	R	L	D	?	Head and arm	Separate.
1665	29	7th	Feb. 6	F	F	R	L	L	Breech	Head	Single.
1823	28	5th	Feb. 28	M	F	R	L	D	Natural	Natural	?
2714	26	3rd	Aug. 5	M	M	R	D	D	Head	Foot	?
2896	34	10th	Sept. 25	F	F	R	D	L	Vertex	Feet	?
3176	33	4th	Nov. 4	F	F	R	L	L	Vertex	Vertex	Single.
3177	30	5th	Dec. 14	F	F	R	L	D	Breech	Arm	Single.
2	25	6th	Dec. 5	F	F	R	L	L	Vertex	Vertex	Single.
2974	28	8th	Dec. 13	M	M	R	L	L	Breech	Breech	Single.
2988	18	1st	Oct. 12	F	F	R	L	L	Vertex	Breech	Single.
2110	34	9th	May 16	M	M	R	L	L	Natural	Natural	

It thus appears that 3 cases of twins occurred in the months of July, August, September, and October, 1 of which, No. 2714, was a case of abortion, the mother expecting in December, and 2 were in the months of March, April, May, and June.

The placentæ were separate in 1 case, single in 6; in 6 cases the condition is not recorded.

The children were—

In 5 cases, both males;
" 6 " " females;
" 1 case, male and female.

Cases of Craniotomy.

1489. J. F—; æt. 37, 9th confinement. A delicate, emaciated woman. Of her previous 8 confinements the following is a short history:

1st, boy, at full term, decapitated.

2nd, boy, premature labour induced at seven months. Died, æt. 9, of phthisis.

3rd, girl, premature labour induced at seven months. Living.

4th, girl, premature labour induced at seven months. Died of phthisis at 4 years.

5th, boy, at term, no doctor required. Living.

6th, miscarriage.

7th, girl, at term, by forceps. Living.

8th, girl, at term, by forceps. Living.

The present gestation had gone on to term. Labour commenced on the evening of January 20th, at 9 p.m.; the os was found dilated, and the pains were fairly good. The following morning (January 21st) the pains had ceased; a large, hard, round projection could also be felt apparently growing from the sacral promontory and encroaching on the inlet and cavity of pelvis. By measurement with fingers the conjugate diameter was judged to be about three inches; above this the head was felt. The membranes being now ruptured and os fully dilated, forceps were applied; they locked easily. Traction brought the head down about half an inch, but further than this it could not be moved. Dr. Cory was now called in, and on his arrival continued the traction, chloroform being given, but without avail; then, considering the apparent size of the head, the degree of pelvic contraction, and the probable lifelessness of the child, he determined upon craniotomy. This was accomplished with some little difficulty.

On January 22nd she was progressing fairly.

24th.—Some abdominal tenderness.

25th.—Bowels have acted, but tenderness and flatulence remain. Temperature 99.

26th.—Did not sleep well; tongue dry; is thirsty and irritable; lochia free. On calling at 5 p.m., unexpectedly, found her up and seated by the fire, looking anxious and much prostrated, with pains in shoulder and elbow. Pulse 130; four or five motions during day. 9 p.m.—In bed; looks better. Pulse 120; temperature 98·8°. Lochia have ceased; no pain.

27th.—Slept four hours after opium; tongue dry; tympanitis; flatulence and abdominal pain increased. Pulse 130; temperature 101°.

30th.—Is vomiting a dark fluid. There is much diarrhœa; eighteen motions in twenty-four hours. In the evening of this day delirium set in, followed by coma, which lasted until 11 p.m. on February 1st, when she died.

At the post-mortem general suppurative peritonitis was discovered, most intense around the uterus and its neck. The conjugate diameter of the inlet (with the soft parts) was a little under three inches.

2395. C. S—, æt. 40, 5th confinement. Labour commenced at 10 p.m. The obstetric clerk was sent for at 1.30 a.m. He found the os about the size of a shilling. At 2.30 the membranes ruptured, but as at 6.30 a.m. no advance had been made, the resident accoucheur was sent for. He found the woman still having strong pains, with the head above the brim. He applied the forceps, but could not bring the head down; he therefore sent for Dr. Cory, who arrived about 7.15 a.m.. The woman was then put under chloroform, and the forceps again applied, but without effect. Craniotomy was then determined upon, owing to the contracted condition of the pelvis. This was accomplished, and the woman made a good recovery. She had had no difficulty with her previous labours except the last, five years previously, which was said to have been a transverse presentation. The child was a very large male.

Cases of Maternal Deaths.

1489. See among cases of craniotomy.

1771. H. M—, æt. 28, 2nd confinement. On February 16th confined of a dead female child (seven months). Labour normal. At midnight she got out of bed and walked about the room.

February 17th.—Abdominal pain and tenderness. Pulse 120. No lochia or milk.

19th.—She is lying on her back; great prostration and muttering delirium; can be partly roused; tympanitis; lochia fœtid; no milk; bowels confined.

20th.—Improved in the day, but delirium came on at night. Pulse 140, morning. Temperature 102°. Sordes on tongue and teeth. Respiration 48. Tympanitis. Died at 11.45.

2134. M. R—, æt. 21, 1st confinement. Confined on the 9th of June at 6.30. The perinæum was ruptured; this was sewn up by the resident accoucheur four hours after, two deep quill sutures and five superfine wires being used.

10th.—Doing well.

11th.—Complains of soreness and tension about perinæum.

12th.—Doing well.

13th.—Complained of pain in the left iliac region. Deep sutures removed. Temperature 102° in the evening; pulse 130. Cough; some delirium.

14th.—Much worse. Temperature 104·3°; pulse 160. Pain over uterus increased by pressure. Milk, which had appeared on the 11th, was now suppressed, and the lochia were offensive.

15th.—Still very ill. Temperature 103°; pulse 112.

16th.—Abdomen swollen and tympanitic; breathing rapid and thoracic. Temperature 101°. Anxious countenance; pulse small and rapid; no pneumonia.

17th.—Much worse; vomiting had come on with diarrhœa; tympanitis. Perinæum was examined and found united.

18th.—Died at 6 o'clock in the evening.

REPORT OF

THE OBSTETRICAL DEPARTMENT

FOR 1877.

By ROBERT CORY, M.B.

RESIDENT ACCOUCHEURS FOR THE YEAR—MESSRS. R. MAPLES, C. CAMERON, G. H. D. GIMLETTE, C. H. WHITE.

FROM the 1st of January, 1877, to the 31st of December, 1877, both dates inclusive, 1733 women were attended. Of these, 1722 resulted in single births, and 11 in twins; 5 of the former were cases of abortion.

In the following table the presentations are classified:

	Among the 1722 single births.	Among the 11 twin births.	Total.
Vertex	1657	15	1673
Breech	38	4	42
Superior extremities, including the shoulder	7	2	9
Head and hand	5	0	5
Inferior extremities	4	1	5
Face or forehead	6	0	6
Abortions	5	0	5

Of the 1733 cases attended,

294 were 1st labours.
306 „ 2nd „
242 „ 3rd „
200 „ 4th „
189 „ 5th „
149 „ 6th „
115 „ 7th „
90 „ 8th „
49 were 9th labours.
44 „ 10th „
23 „ 11th „
20 „ 12th „
7 „ 13th „
4 „ 14th „
0 „ 15th „
1 „ 16th „

The number of children born at the different maternal ages is given below:

Age of mother.	No. of births.	Age of mother.	No. of births.
17	5	32	82
18	23	33	45
19	51	34	61
20	84	35	55
21	104	36	54
22	89	37	36
23	101	38	39
24	104	39	33
25	119	40	36
26	97	41	14
27	92	42	15
28	105	43	5
29	101	44	9
30	102	45	3
31	49	46	3

The youngest age among the child-bearing women being 17, the oldest 46.

The forceps were used in 59 cases; the reasons given for their use are as follows:

Delay at brim	15	4 from large heads. 2 „ contracted pelvis. 9 „ tedious.
Delay at outlet	22	
Tedious	17	
Face presentations	3	
Convulsions	1	
Placenta prævia	1	

There were 23 cases of primiparæ among these 59 cases, which gives a percentage of 39·; the general percentage of primiparæ among the 1733 cases being 16·9.

Version was resorted to in 11 cases for the following reasons:

Placenta prævia	2
Contracted pelves	2
Presentation of superior extremities	6
Convulsions	1

Nine of the children in the above cases were still-born, and one maternal death occurred. The case in which this happened was one of twins, and the labour was complicated with convulsions. The death took place twenty-eight days afterwards. The urine of the patient at first contained a large quantity of albumen, which is said to have disappeared and again reappeared before death.

The breech presented 37 times among the single births, giving a proportion of 1 in 45·6 cases. In 14 of these cases the children were still-born, *i. e.* 1 child in every 2·6, or 37·8 per cent. Four, at least, of these children had been dead some days before birth.

The following table gives the particulars of the cases of placenta prævia.

No.	Age.	Confinement.	Sex.	Result to Child.	Treatment.	Result to Mother.
3159	45	12	M.	D	Forceps	Recovered.
42	27	2	F.	L	Partial separation of placenta; version	Recovered.
974	42	10	M.	L	Not stated	Recovered.
1962	39	10	M.	D	Version	Recovered.

The following table gives the cases in which the uterus was injected with a solution of ferric chloride; they are altogether 10 in number, and the women in all the cases made good recoveries.

The solution used was the Liquor Ferri Perchloridi fortior, and the strength mentioned in the table refers to this as mixed with water in the proportion named.

No.	Age.	Confinement.	Date.	Complication.	Result to Mother.	Strength of Solution.	Reason for employment.
598	24	4	June 8	...	Recovery	1 to 4	Ordinary means ineffectual.
623	34	7	,, 27	...	,,	,,	,,
656	26	1	Aug. 19	Craniotomy	,,	,,	,,
705	32	6	July 8	Adherent placenta	,,	,,	,,
737	32	1	,, 22	Forceps; adherent placenta	,,	,,	,,
840	34	1	June 26	Adherent placenta	,,	,,	Transfusion afterwards performed.
892	26	4	Oct. 14	Adherent placenta	,,	,,	Ordinary means ineffectual.
981	38	5	,, 1	Twins	,,	,,	,,
1154	24	2	,, 28	Retained placenta	,,	,,	,,
1510	27	1	Dec. 5	Forceps.	,,	,,	,,

Two cases, viz. 3273 and 656, required the performance of craniotomy combined with cephalotripsy. In both cases delivery had been attempted by version. The mothers made good recoveries.

Six natural deaths occurred during the year, or ·346 per cent.

The following table gives an outline of the cases. They will be found more fully given at the end of this report :

Maternal Deaths.

No.	Age.	Confinement.	Sex.	Result to Child.	Cause of Death.	Date of Confinement.	Date of Death.
3271	24	2	M	..	Puerperal fever	Jan. 2	Jan. 10
110	18	1	F	...	,,	Feb. 15	Feb. 21
315	21	1	M & F	...	Convulsions	April 13	April 27
555	30	9	F	...	Hæmorrhage	June 13	June 13
1411	30	2	M	...	,,	Nov. 9	Nov. 9
1415	36	8	M	...	Sudden death	Oct. 19	Oct. 19

Among the 1733 cases there were 11 cases of twins and 5 cases of abortion, hence the number of viable children born was 1733 + 11—5 = 1739. Of these, 877 were males and 840 females. The sex in 22 cases is not mentioned.

Among the viable children there were 73 still-born, being in the proportion of 1 in 23·7 or 4·21 per cent.

The characters of the labours in which they occurred are given below:

Natural labours	34
Premature labours	5
Forceps cases	4
Version	7
Presentation of lower extremities	4
Breech presentations	14
Twins	1
Placenta prævia	1
Accidental hæmorrhage	1
Craniotomy performed	2

The following table gives particulars of the cases of twin births:

No.	Age.	No. of Confinements.	Date of Birth.	Sex.		Result to Mother.	Result to Child.		Presentations.		Placenta.
				1st.	2nd.		1st.	2nd.	1st Child.	2nd Child.	
309	26	1st	May 22	M	F	R	L	L	Head	Breech	Single.
315	21	1st	April 13	F	M	D	D	L	Head	Shoulder	Single.
354	33	9th	Marc]	F	M	R	L	L	Breech	Head	Separate.
?550	35	3rd	May 30	F	F	R	L	L	Head	Head	...
594	26	4th	July 4	M	F	R	L	L	Head	Breech	Single.
981	38	5th	Oct. 8	F	F	R	L	L	Head	Foot	Single.
1168	30	6th	Oct. 15	F	F	R	L	L	Head	Head	Separate.
1256	28	2nd	Aug. 29	M	M	R	L	L	Head	Head	Single.
1560	37	11th	Sep. 23	M	F	R	D	D	Head	Arm	Separate.
1723	26	6th	Dec. 17	M	M	R	L	L	Natural	Natural	...
1152	30	7th	Aug. 28	F	M	R	D	L	Breech	Head	Single.

It thus appears that there were 6 cases of twins in the months of July, August, September, and October, and 4 in the months of March, April, May, and June.

The placentæ were separate in 3 cases, single in 6; in 2 the condition is not recorded.

The children were:

In 2 cases, both males;
„ 3 „ „ females;
„ 6 „ male and female.

There were only 3 cases of malformation reported during the year :

No. 38.—Male child, still-born ; breech presentation : had a complete cleft of the palate, and an extra finger on each hand.

No. 372.—Male child, had a thumb and finger and three stumps, representing the 2nd, 3rd, and 4th fingers on the right hand. The left hand was normal.

The mother stated she had frequently met a friend who had lost 2 middle fingers and that she had seen the stump.

The third case was a child who had the middle, ring, and little finger of left hand webbed together.

Transfusion was resorted to with success in 1 case, viz. No. 840.

The Resident-Accoucheur, Mr. Charles Cameron, was called on the 26th June, 1877, to S. L—, on account of severe hæmorrhage after delivery. The patient was 34 years of age, and it was her 1st confinement. He ascertained that she had been losing blood for fourteen days previously to the above date, that the labour had been natural, and that the child, which was living, had been born one hour and a half before his arrival.

He found that hæmorrhage was still going on, and that the placenta was adherent to the fundus and anterior surface of the uterus. The woman was in a state of collapse ; the pulse was scarcely perceptible at the wrist ; the face and lips were blanched, and her extremities cold. Mr. Cameron removed the placenta as quickly as possible, but much blood was lost while this was being done. The uterus did not contract afterwards, so some Liquor Ferri Perchloridi Fortior, diluted (1 vol. to 4 of water), was at once injected. This immediately arrested the hæmorrhage. Hot-water bottles were then applied to the feet, and two brandy enemata injected, and Dr. Cory sent for. On seeing the patient, who was now quite unconscious, restless, and throwing her arms about, Dr. Cory determined at once to try transfusion. Dr. Roussel's apparatus was at hand at the hospital ; this was obtained without delay, and Mr. Cameron offered his blood. The cup of the instrument was placed over the left radial vein of Mr. Cameron's arm. The left radial vein of the woman was at first opened, but this, however, was too small to admit the canula. The right median basilic was therefore opened, and was found of ample size. All being ready, Mr. Cameron's vein was pricked. The blood flowed readily, and filled the injecting ball rapidly, so that in a very short time ten ounces of blood had passed. At this point the injecting ball began to leak, and as it was feared air might thereby be admitted, the operation was then terminated.

The woman seemed at once to revive, the colour returned to her face and lips, and the pulse became again perceptible.

On leaving the house half an hour after this the woman seemed much better.

Shortly, however, Mr. Cameron was again sent for and found her with livid face, restless, and collapsed. Brandy was administered and hot bottles kept to the feet.

At 9 p.m. she was much better.

At 1 a.m., June 27th, her extremities were warm, she was perfectly conscious, put her tongue out when asked, and said she had no pain except in the head. Temperature 37·8°. Taking iced milk and brandy as nourishment. Respiration normal.

11 a.m.—Spoke and seemed quite rational. Said in answer to questions that she was 34, and had been married about one year, and that her child was a girl. She moreover said that she remembered nothing of what had taken place after her delivery the day before. Temp. 37·8. Urine of a very dark colour, but contained no albumen, as drawn by a catheter.

28th.—Complained of great pain in the head.

29th.—There was no evidence of milk in the breasts. Offensive discharge from uterus. The vagina was accordingly washed out twice daily. This was done for the next four days, sometimes a weak solution of carbolic acid being used, and sometimes dilute Condy's fluid.

30th.—Not so well. There was pain in the abdomen on pressure. Tongue clean. Pulse 120. Temp. 38·1 C. The urine continued of a high colour, but contained no albumen.

July 1st.—Very much better, asked for more solid food, said she was very hungry. From this date she steadily improved, and left her bed on the 5th of July, ten days after her labour.

The incision in the skin of the woman's arm healed up quickly.

Mr. Cameron felt no further inconvenience than that of want of energy for the following few days. A diffuse ecchymosis appeared on his arm a day or two afterwards which caused him no inconvenience.

Cases of Maternal Deaths.

3271. *Puerperal Fever.*—Eliza T—, æt. 24, 2nd confinement, residing at 31, Horseferry Road, Westminster, was confined on the 2nd Jan, 1877.

The child was born when the obstetric clerk arrived; he removed the placenta, but did not introduce his hand into the uterus. She did well until June 8th, when she became feverish, and the lochial discharge diminished in quantity, but did not become offensive. Her tongue was clean. The abdomen was tender at the lower part. Bowels had been opened. No diarrhœa. Milk scanty.

On Jan. 10th the resident accoucheur went down to see the patient, he found her in almost a moribund condition. Temp. 103. Pulse 130, very weak. Lochial discharge suppressed. Abdomen distended and tympanitic. No pain on manipulation. Extremities cold. Tongue dry and brown. She answered questions, but incoherently. Respirations were hurried and feeble. There was no dulness over back or front of chest. She had been sick frequently in the day, bringing up a dark grumous fluid. She gradually became worse and died same night.

110. *Puerperal fever.*—Annie S—, æt. 18, 1st confinement, residing at 27, Smith's Square, Millbank, was confined on the 15th February. The labour was natural. The obstetric clerk had to introduce his hand into the uterus to remove the placenta; there was considerable hæmorrhage.

On Feb. 17th she had a rigor. Temp. 103. Lochial discharge scanty and offensive. No secretion of milk. Headache; furred tongue. Tenderness over uterus.

18th.—Temp. varying, in the morning 100, and at night 104. Bowels had been open. Abdomen was tympanitic, and tender. Face flushed.

19th.—Patient expressing herself as better. Abdomen less tender and less distended. Temp. 102.

20th.—Diarrhœa. Sordes on lips. Expression dull and apathetic. She died on the evening of Feb. 21st.

In this case, as part of the treatment, the uterus was washed out daily with dilute Condy's fluid.

315. *Convulsions.*—Sarah Ann F—, æt. 21, 1st confinement, residing at 1, Mason's Street, Cornwall Road, was confined on the 13th April, 1877.

She was first seen at 9.30 a.m. and was then having rapid epileptiform convulsions of severe character; the convulsions had first occurred three days previously. When seen by the resident accoucheur she was quite unconscious of all around her. Chloroform was administered. Forceps were used to hasten delivery. Female child soon born; another child was felt and extracted by version; this was a male. The patient recovered consciousness at the end of third day. The urine was at first charged with albumen; this gradually disappeared, but again reappeared. The woman died twenty-eight days after delivery.

555. *Hæmorrhage.*—Matilda O—, æt. 30, 9th confinement, residing at 11, Duke Street, Lambeth, was confined on the 13th June, 1877. In this case the resident accoucheur was sent for, and he found on his arrival that the placenta had been retained for some hours, and that copious hæmorrhage had taken place. On introducing his hand into the uterus he found the placenta was adherent to the fundus. This he detached, the woman losing much blood the meanwhile. She sank in about two hours afterwards.

1411. *Hæmorrhage.*—Lavinia B—, æt. 30, 2nd confinement, residing at 3, Ponton Terrace, Nine Elms Lane. Confined 9th November, 1877. In this case the obstetric clerk arrived twenty minutes after the birth of the child; there had been severe hæmorrhage. The woman died about two minutes afterwards. There was no delay in attending.

1415. *Sudden Death.*—Mary Ann W—, æt. 36, 8th confinement, residing at 30, Hunt Street, Vauxhall, was confined on the 19th October, 1877. On the 29th October, ten days after delivery, while sitting up in bed, suddenly fell back dead. No examination of the body was allowed.

Distribution of Prizes,

On Monday, 16th July, 1877, at Four o'clock, by

THE RIGHT HON. AND RIGHT REV. THE LORD BISHOP OF LONDON.

PRIZES FOR SUMMER SESSION OF 1876.

FIRST YEAR'S STUDENTS.

Introduced by Mr. WAGSTAFFE.

H. A. H. FENTON, *Westminster*	COLLEGE PRIZE £15, and Certificate of Honour.
TAKAKI KANEHIRO, *Kasumigaseki, Tokei, Japan*	DITTO £10, and Certificate of Honour.
T. D. SAVILL, *Brixton*	DITTO £5, and Certificate of Honour.
HO KAI, *Hong Kong, China*	Certificate of Honour.
A. PURKISS, *Stockwell*	Certificate of Honour.
F. W. LEREW, *Maida Vale*	Certificate of Honour.
A. V. BERNAYS, *Great Stanmore, Middlesex*	Certificate of Honour.

SECOND YEAR'S STUDENTS.

Introduced by Dr. PAYNE.

W. F. HASLAM, *Reading*	COLLEGE PRIZE £15, and Certificate of Honour.
R. P. SMITH, *Belvedere, Kent*	DITTO £10, and Certificate of Honour.

PRIZES FOR WINTER SESSION OF 1876-77.

ENTRANCE SCIENCE SCHOLARSHIPS.

Students introduced by Mr. STEWART.

R. J. WILLIAMSON, *Ripon*	Scholarship £60, and Certificate of Honour.
H. N. HOLBERTON, *Hampton, Middlesex*	Scholarship £40, and Certificate of Honour.

FIRST YEAR'S STUDENTS.

Introduced by Dr. J. HARLEY.

W. A. DUNCAN, *Manchester*	WM. TITE SCHOLARSHIP, £30, and Certificate of Honour.
H. N. HOLBERTON, *Hampton, Middlesex*	COLLEGE PRIZE £20, and Certificate of Honour.
W. W. WEBBER, *Crewkerne, Somerset,*	DITTO £10, and Certificate of Honour.
A. B. CARPENTER, *Croydon*	Certificate of Honour.

SECOND YEAR'S STUDENTS.

Introduced by Dr. Bernays.

A. Newsholme, *Bradford*	COLLEGE SCHOLARSHIP, 40 Gs., and Certificate of Honour.
Takaki Kanehiro, *Kasumigaseki, Tokei, Japan*	COLLEGE PRIZE £20, and Certificate of Honour.
C. A. Ballance, *Lower Clapton*	DITTO £10, and Certificate of Honour.
T. D. Savill, *Brixton*	Certificate of Honour.
Ho Kai, *Hong Kong, China*	Certificate of Honour.

THIRD YEAR'S STUDENTS.

Introduced by Dr. Stone.

S. J. Taylor, *Grantham*	MUSGROVE SCHOLARSHIP, 40 Gs., and Certificate of Honour.
S. J. Taylor, *Grantham*	COLLEGE PRIZE £20, and Certificate of Honour.
S. A. Crick, *Cosby Hill, Leicestershire*	DITTO £15, and Certificate of Honour.

PHYSICAL SOCIETY'S PRIZES.

Students introduced by Mr. Mac Kellar.

G. H. D. Gimlette, *Southsea*	SOCIETY'S THIRD YEAR'S PRIZE, and Certificate of Honour.
C. A. Ballance, *Lower Clapton*	SOCIETY'S FIRST YEAR'S PRIZE, and Certificate of Honour.

ANATOMICAL ASSISTANTS.

Hutton Castle	Certificate of Honour.
W. F. Haslam	Certificate of Honour.
H. J. Michael	Certificate of Honour.
R. P. Smith	Certificate of Honour.

PROSECTORS.

Students introduced by Mr. F. Mason.

T. L. Laxton, *Stamford*	PRIZE, and Certificate of Honour.
G. S. Hatton, *Newent, Gloucestershire*	PRIZE, and Certificate of Honour.

RESIDENT ACCOUCHEURS.

Introduced by Dr. Gervis.

Wm. Morgan	Certificate of Honour.
T. Milman, M.D.	Certificate of Honour.
B. Pitts, M.B.	Certificate of Honour.
R. Maples	Certificate of Honour.

SOLLY MEDAL AND PRIZES.

Students introduced by Mr. Mac Cormac.

W. H. Battle, *Lincoln*	MEDAL and PRIZE £15.
C. W. De Lacey Evans, *Bangor*	MEDAL and PRIZE £5.

SURGERY AND SURGICAL ANATOMY.

Student introduced by Mr. Croft.

H. U. Smith, *Reading*	The CHESELDEN MEDAL, founded by the late George Vaughan, Esq.

PRACTICAL MEDICINE.

Student introduced by Dr. Murchison.

G. B. Longstaff, M.B., *Wandsworth*	The MEAD MEDAL, founded by Mr. and Mrs. Newman Smith.

HOUSE SURGEONS.

Introduced by Mr. Sydney Jones.

B. Pitts, M.B., F.R.C.S.	Certificate of Honour.
R. Maples	Certificate of Honour.
C. C. Smith, M.B.	Certificate of Honour.
W. Edmunds, M.B., F.R.C.S.	Certificate of Honour.

HOUSE PHYSICIANS.

Students introduced by Dr. Bristowe.

T. Twining, M.B.	Certificate of Honour.
J. F. Nicholson	Certificate of Honour.
J. R. Leeson, M.B.	Certificate of Honour.
W. H. Page	Certificate of Honour.

FOR GENERAL PROFICIENCY AND GOOD CONDUCT.

Student introduced by The Dean.

C. E. Sheppard, *Kensington*	The TREASURER'S GOLD MEDAL and Certificate of Honour.

Dr. ORD, *Dean*. Dr. GILLESPIE, *Secretary to the Medical School.*

Distribution of Prizes,

On Friday, 7th June, 1878, at Four o'clock, by

FREDERICK LE GROS CLARK, Esq., F.R.S., Honorary Consulting Surgeon to the Hospital.

PRIZES FOR SUMMER SESSION OF 1877.

FIRST YEAR'S STUDENTS.

Introduced by Mr. Wagstaffe.

W. A. Duncan, *Manchester*	COLLEGE PRIZE £15, and Certificate of Honour.
R. Heelis, *Carshalton*	DITTO £10, and Certificate of Honour.
F. W. Nicholson, *Putney*	DITTO £5, and Certificate of Honour.

SECOND YEAR'S STUDENTS.

Introduced by Dr. Payne.

A. Newsholme, *Bradford*	COLLEGE PRIZE £15, and Certificate of Honour.
T. D. Savill, *Brixton*	DITTO £10, and Certificate of Honour.
Takaki Kanehiro, *Tokei, Japan*	DITTO £5, and Certificate of Honour.

PRIZES FOR WINTER SESSION OF 1877-78.

ENTRANCE SCIENCE SCHOLARSHIPS.

Students introduced by Mr. Bennett.

W. Wansbrough Jones, *Leek, Stoke-upon-Trent*	Scholarship £60, and Certificate of Honour.
A. E. Wells, *Brixton*	Scholarship £40, and Certificate of Honour.

FIRST YEAR'S STUDENTS.

Introduced by Dr. J. Harley.

W. Wansbrough Jones, *Leek, Stoke-upon-Trent*	WM. TITE SCHOLARSHIP £30, and Certificate of Honour.
F. W. Stoddart, *Bristol*	COLLEGE PRIZE £20, and Certificate of Honour.
M. Jay, *Wallaroo, South Australia*	DITTO £10, and Certificate of Honour.
A. E. Wells, *Brixton*	Certificate of Honour.
W. Fell, *Kensington*	Certificate of Honour.

SECOND YEAR'S STUDENTS.

Introduced by Dr. Bernays.

W. A. Duncan, *Manchester*	MUSGROVE SCHOLARSHIP, 40 Gs., and Certificate of Honour.
H. N. Holberton, *Middlesex*	COLLEGE PRIZE £20, and Certificate of Honour.

THIRD YEAR'S STUDENTS.

Introduced by Dr. Stone.

A. Newsholme, *Bradford*	COLLEGE SCHOLARSHIP, 40 Gs., and Certificate of Honour.
A. Newsholme, *do.*	COLLEGE PRIZE £20, and Certificate of Honour.
Takaki Kanehiro, *Tokei, Japan*	DITTO £15, and Certificate of Honour.

PHYSICAL SOCIETY'S PRIZES.

Students introduced by Dr. Greenfield.

For 1876-77.

Hutton Castle, *Newport, Isle of Wight*	SOCIETY'S THIRD YEAR'S PRIZE, and Certificate of Honour.
G. Gulliver, *Canterbury*	SOCIETY'S SECOND YEAR'S PRIZE, Certificate of Honour.
J. N. Stephens, *Margate*	SOCIETY'S FIRST YEAR'S PRIZE and Certificate of Honour.

For 1877-78.

T. D. Acland, B.A., *Oxford*	SOCIETY'S THIRD YEAR'S PRIZE, and Certificate of Honour.
W. A. Duncan, *Manchester*	SOCIETY'S SECOND YEAR'S PRIZE, and Certificate of Honour.
W. Wansbrough Jones, B.A., *Leek, Stoke-upon-Trent*	SOCIETY'S FIRST YEAR'S PRIZE, and Certificate of Honour.

ANATOMICAL ASSISTANTS.

Students introduced by Mr. Mac Kellar.

H. Swale, *Guildford*	Certificate of Honour.
Ho Kai, *Hong Kong*	Certificate of Honour.
S. W. Sutton, *Reading*	Certificate of Honour.
R. J. Williamson, *Ripon*	Certificate of Honour.
T. D. Savill, *Brixton*	Certificate of Honour.

PROSECTORS.

H. J. Barron, *Guildford Street, Russell Square*	PRIZE, and Certificate of Honour.
F. W. Nicholson, *Putney*	PRIZE, and Certificate of Honour.

RESIDENT ACCOUCHEURS.

Introduced by Dr. Gervis.

C. H. H. Cameron	Certificate of Honour.
G. H. D. Gimlette	Certificate of Honour.
C. H. White	Certificate of Honour.
F. H. Weekes	Certificate of Honour.

SOLLY MEDAL AND PRIZE.

Student introduced by Mr. Mac Cormac.

C. E. Sheppard, *Kensington* ... ... MEDAL and PRIZE £20.

SURGERY AND SURGICAL ANATOMY.

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W. F. Haslam, *Reading* ... ... CHESELDEN MEDAL, founded by the late George Vaughan, Esq.

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Student introduced by Dr. Murchison.

S. J. Taylor, *Grantham* ... ... The MEAD MEDAL, founded by Mr. and Mrs. Newman Smith.

HOUSE SURGEONS AND ASSISTANT HOUSE SURGEONS.

Introduced by Mr. Sydney Jones.

J. F. Nicholson	House Surgeons.	Certificate of Honour.
J. Black, B.A.		Certificate of Honour.
F. H. Weekes		Certificate of Honour.
W. H. Battle		Certificate of Honour.
E. L. G. Gamble	Assistant House Surgeons.	Certificate of Honour.
G. H. D. Gimlette		Certificate of Honour.
S. A. Crick		Certificate of Honour.

HOUSE PHYSICIANS AND ASSISTANT HOUSE PHYSICIANS.

Introduced by Dr. Bristowe.

J.A.M.Moullin, B.A.	House Physicians.	Certificate of Honour.
G. H. Makins		Certificate of Honour.
H. U. Smith, M.B.		Certificate of Honour.
W. Tyrrell		Certificate of Honour.
W. Tyrrell	Assistant House Physicians.	Certificate of Honour.
R. B. Bothamley		Certificate of Honour.
W. H. Battle		Certificate of Honour.
E. H. Hare, B.A.		Certificate of Honour.

FOR GENERAL PROFICIENCY AND GOOD CONDUCT.

Student introduced by The Dean.

S. J. Taylor, *Grantham*... ... ... The TREASURER'S GOLD MEDAL.

Dr. ORD, *Dean*. Dr. GILLESPIE, *Secretary to the Medical School.*

St. Thomas's Hospital

MEDICAL SCHOOL.

PROSPECTUS

FOR THE

YEAR COMMENCING OCTOBER 1st, 1878.

1878 & 1879.

LONDON:
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Full information on all matters connected with the Medical School, Prizes, &c., will be obtained on application to the Secretary, DR. GILLESPIE, *at the Hospital, Albert Embankment, S.E.*

A list of Lodgings suitable for Students has been recently revised, and is kept in the Secretary's Office. Information as to terms, accommodation, &c., can be obtained on application. This list has been especially prepared, with a view to the convenience of gentlemen newly arriving in town without definite arrangements having been made for their accommodation in lodgings or otherwise.

St. Thomas's Hospital

MEDICAL AND SURGICAL COLLEGE.

The Winter Session 1878—79 will commence on Tuesday, October 1st, and terminate on March 30th.

The Summer Session will begin on Thursday, May 1st, and terminate on July 31st.

The Introductory Address will be delivered in the Hall of the Hospital by

Mr. NETTLESHIP,

On Tuesday, the 1st of October, at 4 o'clock, p.m.

The Annual Dinner, in which all old and present Students are invited to join, will take place the same evening at the Pall Mall Restaurant, at 6 o'clock for 6.30 precisely.

The Annual Distribution of Prizes will be made in June.

ALL accounts agree in attributing the origin of St. Thomas's Hospital to circumstances more or less accidental. In Stow's "Survey of London," we find "that a fire happened in the Borough of Southwark in the year 1207, which destroying the Priory of St. Mary Overie, the Canons erected an Hospital hard by for the celebration of divine service, till their Monastery could be rebuilt; which they soon after accomplishing, Peter de Rupibus, or de la Roche, Bishop of Winchester, for the greater convenience of air and water, removed the said Hospital in the year 1215, and erected it in a place where Richard, Prior of Bermondsey, but two years before had built an Almonry or Almshouse for the reception of indigent children and necessitous Proselytes, and having dedicated the same to St. Thomas the Apostle, endowed it with land to the amount of three hundred and forty-three pounds per annum."

It is difficult to say whether it is owing to deficiency of historical accuracy in Maitland (from whom the above is quoted), or to excess of orthodoxy, that he names St. Thomas *the Apostle*. Certain it is, however, that Peter de la Roche denominated his foundation "The Spitil of St Thomas the Martyr of Canterbury," in honour of Thomas à Becket, whose shrine in Canterbury Cathedral was already drawing what Chaucer aptly terms "shoals" of pilgrims down the "Old Kent Road," and past the very door of the Hospital to the Tabard Inn.

The next fact of importance seems to be the cession of the Hospital by the Prior of Bermondsey to a President, Master and Brethren, in 1482; unless we note an altercation in 1252 between the then Archbishop of Canterbury and the Bishop of Winchester for the patronage of it. This ended in favour of the latter, whose palace hard by survives in name, and partly in structure to the present day, as Winchester House. From an estimate formed about the later of these dates, it appears there were a master and brethren, and three lay-sisters, residing in the hospital; forty beds were made up for poor, infirm and impotent people, all of whom had victuals and firing allowed to them.

From this time, Golding truly says, nothing of importance occurred either in the government or revenues of St. Thomas's Hospital until the 26th year of Henry VIII., when an estimate was formed of the latter, which were found to amount to the annual sum of £347. 3s. 6d. It is not to be wondered at that we have so little to record during these early times; for the "Hospitium" dependent on the rich Abbey of Bermondsey was, as the name strictly implies, more an almshouse than a Hospital. No doubt the sick found their way into it with other distressed persons; and no doubt some learned monk, using the shelter and leisure of the cloister for researches in alchemy and medicine, was told off to minister to their physical necessities. The brotherhood of the Rosy Cross, to which Gower, now lying in the neighbouring church, belonged, was intimately connected with the early quest after Arcana and Elixirs of Life which represented the science of the time.

In the year 1535, Henry VIII. was excommunicated by Pope Paul III., and, declaring himself head of the church, proceeded to dissolve the Catholic houses, whose large revenues went to the Crown. There seem to have been 645 monasteries and abbeys thus treated, twenty-eight of which had abbots with seats in Parliament, ninety colleges and free chapels, and 110 hospitals of various descriptions. It is certainly in favour of the sweeping change that so able and honest a man as Sir Richard Gresham, the Lord Mayor of London, should have put his hand to the following petition to the King:

"Most redowted, puysant, and noble Prince * * * *—nere and within the cytie of London be iij hospitalls or spytells, commonly called Seynt Georges Spytell, Seynt Barthilmews Spytell, and Seynt Thomas Spytell, and the new Abbey of Tower Hill, founded of good devotion by auncient fathers, and endowed with great possessions and rents only for the reliefe, comforte, and helping of the poore and impotent people lying in every street, offending every clene persone passing by the way with theyre fylthy and nasty savors. Wherefore may it please your merciful goodness, enclyned to pytie and compassion, for the reliffe of Xts very images, created to his own similitude, to order by your high authoritie, as supreme head of this Church of England, or otherwise by your sage discretion, that your mayer of your cytie of London, and his brethren the aldermen for the time being, shall and may from henceforth have the order, disposition, rule and governaunce, both of all the lands, tenements, and revenues apperteynyng and belongyn to the said Hospitals, governors of them, and of the ministers which be or shall be withyn any of them, and then your grace shall facilie perceyve that where now a small number of Chanons, Priests, and Monkes be founde for theyr own profitt only, and not for the common utilitie of the realme, a great number of poore, needy, syke and indugent persones shall be refreshed, maynteyned, and comforted; and also healed and cured of their infermities frankly and freely by physicions, surgeons and potycaries, which shall have stipende and salarie only for that purpose; so that all impotent persones not able to labour shall be releved, and all sturdy beggars not willing to labour shall be punished."

St. Thomas's Hospital being claimed by the King as Church property, was surrendered to him by Nicholas Buckland, the then master, on the 15th July, 1538. It was called St. Thomas à Becket's Spittil. Its yearly revenue was estimated at £266. 17s. 6d., and an annual pension of 5s. 8d. was payable by the master, and another of 2s. 1d. by the curate, to the Archdeacon of Surrey. Soon after the seizure, we find that the Citizens of London purchased of the Crown some of its landed estates, producing about £160 yearly. The want of the hospital thus destroyed was felt immediately. Wounded soldiers from the army in France, and the sick poor in general, were without provision or help, and Henry proposed granting to the City the Mansion house of St. Bartholomew's, the dissolved house of Grey Friars adjoining, and the unoccupied fabric of St. Thomas's Hospital. The latter was intended by Henry to receive the name of the Hospital of the Holy Trinity, and to be allotted exclusively to lame, wounded, and diseased soldiers. The monastery of Grey Friars was to be for the education and maintenance of fatherless children and those of poor parents. The intentions of Henry were overtaken by death, but not before he had conferred upon the citizens of London the Hospital of St. Bartholomew's and also that of Bethlem for lunatics.

It is from the death of Henry that the connection of St. Thomas's Hospital with the city of London appears to begin. To meet the needs of the sick and destitute who had before depended on the charity of the religious houses, a Committee or Board of Inquiry was instituted by the Citizens, with the sanction of King Edward. About 2,100 souls were reported as fit recipients of relief, as fatherless children and invalids, or as "Idle rogues of both sexes who were levying contributions on public sympathy by feigned tales of sorrow." It was proposed to establish receptacles for each class in the unoccupied monastic buildings, and a pecuniary contribution was set on foot to complete the work. They bought the dissolved house of the Franciscans or Grey Friars near St. Bartholomew's Hospital, and also by charter from the King received a grant as follows: "That the said mayor, commonalty, and citizens, and their successors, may have and enjoy all the franchises, immunities, and privileges whatever, which any Archbishop of Canterbury, and which the said Charles late Duke of Suffolk, or any master, brethren, or sisters of the late Hospital of St. Thomas in Southwark aforesaid; or any Abbot of the said monastery of St. Saviour, Saint Mary Bermondsey, next Southwark aforesaid, or any prior and convent of the priory of St. Mary Overie, ever had or enjoyed, or which we hold or enjoy, or our most dear father Henry the VIIIth, late King of England, or had enjoyed, or ought to have, hold, and enjoy the same: and that none of our heirs or successors may intermeddle with this our grant."

The Greyfriars became Christ's Hospital, and the Southwark site the Hospital of the Holy Trinity or St. Thomas's. The Lord Mayor and certain citizens then met on the 6th of October, 1552, and constituted themselves by royal permission governors of the hospitals, and almoners of the money collected. The Hospital of the Holy Trinity they named, in compliment to Edward, the "King's Hospital," and ordained it to receive 260 "wounded soldiers, blind, maimed, sick, and helpless objects."

They also directed that 380 children should be received into Christ's Hospital.

To complete the scheme, the old palace of Bridewell, in Blackfriars, where the Emperor Charles V. had lodged in 1522, when on a visit to Henry VIII., and where subsequently Wolsey had lived, was granted to the City by Edward as a house of correction for dissolute persons and idle apprentices, and for the temporary maintenance of distressed vagrants.

Lastly, the lands lately belonging to the Palace of the Savoy were conferred jointly on the three foundations; and a month only before the end of Edward's short reign, he incorporated by a second charter bearing date the 6th of June, 1553, the Lord Mayor and commonalty of the City of London in succession as perpetual governors of Saint Bartholomew's, Christ's, Bridewell, and the King's Hospital (which last received the name of St. Thomas the Apostle), and secured to them the possession of all the estates and revenues appertaining to them by previous deeds of gift. So were the royal hospitals founded.

In 1557 the laws were framed and printed under the name of "The Order of the Hospitals of K. Henry the VIII and K. Edward the VI, viz. St. Bartholomew's, Christ's, Bridewell, St. Thomas's. By the Maior, Cominaltie, and Citizens of London." &c.

Successive bequests and donations continued to augment the property of the charities, but during the reigns of Elizabeth, James I., Charles I., and the Protectorate, there appear few facts to note. In the abstract of the charter of confirmation granted to the City in 1663 by Charles II. on his restoration, we find the charter of Edward acknowledged and confirmed. The Great Fire of London in 1666 injured St. Thomas's in its revenues only; and a fire in Southwark anno 1676, ceased, "as if by divine interposition," at the Hospital, probably a strong and isolated block of building. Shortly after this, however, it was found necessary to rebuild the fabric, and in 1693 subscriptions were opened for this purpose. A long list of benefactions in this and the succeeding year, amounting in all to £37,769. 3s., is given by Golding, who especially singles out Sir Robert Clayton for eulogium. The statue then erected to him, and still extant, was originally dated 1701, but this was altered on his death to 1714. He was the founder of the old square in which it stood, replacing what Golding terms "a low swampy structure of the monastic order." In 1707, Mr. Guy, founder of the neighbouring hospital, erected three wards at his own charge. In 1717, the back block of buildings adjoining Guy's Hospital was added. With the exception of the two large blocks forming the Borough frontage, the north wing erected in 1833, and the south wing in 1839, the fabric seems to have remained unchanged until its purchase by the railway. In the centre of the front quadrangle stood the brass statue of King Edward, by Scheemakers, erected first in 1737, in pursuance of the will of Charles Joye, some time treasurer of the Hospital. It now stands in the grounds of the New Hospital.

It is a matter of more difficulty to trace the early history of the medical school in connection with the hospital. For the facts which follow we are indebted to the late R. G. Whitfield, Esq., who, from the long period during which his family had been associated with this foundation, was perhaps more qualified to speak than any other person.

The earliest mention in the hospital books of an apprentice is on December 31st, 1561. It is not until 1702 that a law is met with precluding pupils or surgeons from dissecting the dead body without permission from the treasurer.

In 1703 the grand committee resolved that no surgeon should have more than three "Cubbs," a term altered in 1758 to that of "Dressers." Besides these there were also apprentices to the surgeons of the hospital, and ordinary pupils. The first mention of lectures occurs soon after the appointment of Wm. Cheselden, in 1718. These he at first gave at his own house, but afterwards by permission in the hospital. They were on anatomy and surgery. In 1723 a regular registry was ordered to be kept by the apothecary, of pupils entering to surgical practice. In 1725, Guy's Hospital was opened for the reception of patients. In 1751, the assistant-physician was allowed to take two pupils for his own benefit. In 1768, an additional surgeon, Mr. Joseph Else, was elected to read lectures to the pupils.

The students of Guy's Hospital had by courtesy been allowed to attend the operations, and a similar favour admitted the St. Thomas's men to those at Guy's. But on the 8th November, 1768, it was formally resolved that the pupils of each hospital have the liberty of attending not only the operations, but surgical practice, and the money to be divided between the six surgeons and two apothecaries. Hence the appellation of the "United Hospitals;" an amalgamation never extended beyond the surgical practice.

To Mr. Else is due the foundation of a regular anatomical school. Mr. Cline, who in 1781 was appointed to read lectures conjointly with Mr. Else, was mainly instrumental in bringing it to its greatest celebrity. At Mr. Else's death Mr. Cline purchased the collection of preparations made by him and Mr. Girle, a former surgeon, which are now in the hospital museum, and became sole lecturer on anatomy. In 1788 he also became surgeon to the hospital. Mr., afterwards Sir Astley, Cooper was apprenticed to Mr. Cline in 1784, and before his election, as one of the surgeons to Guy's Hospital in 1800, was joint lecturer with his teacher on anatomy and surgery. They both added materially to the pathological museum.

In 1812 Mr. Henry Cline was elected surgeon to St. Thomas's Hospital on his father's resignation, and carried on the anatomical lectures conjointly with Astley Cooper. In 1813 a new anatomical theatre and museum were built, the hospital giving £3000 for the purpose, and the two lecturers £1000 each. In 1815 Mr. Benj. Travers, an apprentice of Astley Cooper's at Guy's, was elected surgeon, according to the established rule which gave the vacancy to the senior apprentice of either institution. Mr. Travers joined in the lectures, devoting his attention specially to ophthalmic surgery. In 1820 Mr. Joseph Henry Green was elected surgeon on the death of his cousin Mr. Hy. Cline, having been apprenticed to his uncle Mr. Cline in the year 1809. From 1820 to 1825 he lectured with Astley Cooper. At this period all the branches of medical study,—viz., medicine, chemistry, materia medica, midwifery, botany, and physiology —were lectured on at Guy's Hospital, and no physician of St. Thomas's was allowed to share them.

In 1824 Sir A. Cooper resigned the surgical chair, and Mr. C. Aston Key, his apprentice and nephew by marriage, joined Mr. Green in the office. Mr. Fred Tyrrell, standing in exactly the same relation to Cooper, received permission to lecture on diseases of the eye. In the following year Cooper showed signs of cerebral disturbance, and the family desired that his nephew, Mr. Bransby Cooper, should be his successor. But the claims of Mr. John Flint South were considered superior, and he was appointed. From this cause the " United Hospitals " were severed, and a complete school set up in both. The majority of the students clung to Guy's, where the prestige of the great Sir Astley was still strong; and St. Thomas's school began to sink. The establishment of the Aldersgate Street private school under Tyrrell and Lawrence materially aided in this declension, as did also the secession of Dr. Elliotson to the newly-established University College, and the foundation of a fresh school at King's College, where for a time the surgical lectures were given by Mr. Joseph Henry Green, although a surgeon of St. Thomas's.

Owing to the unprosperous state of affairs in 1842, the Governors came forward to reorganize the school, and the aid of Mr. R. D. Grainger, whose popularity had been established in the Webb Street private school, was obtained. Mr. Joseph H. Green also rejoined the school; and Dr. Marshall Hall, Dr. Hodgkin, Dr. Martin Barry, Dr. Gregory, and Mr. Benjamin Travers contributed to its efficiency. This state of affairs continued until 1858, when the Governors gave back the management, and its attendant risks, into the hands of the lecturers.

For some years it was maintained with difficulty, and at much self-sacrifice on the part of the staff, during what may be termed a transitional period, in the hope, now realized, of its once more developing into an institution worthy of its old traditionary glories.

From its foundation down to the year 1862, the Hospital occupied the original site near London Bridge, but in that year the property was sold for the extension of the railway accommodation, and the establishment temporarily removed to the Surrey Gardens, where it was carried on till the Summer of 1871. In 1868 the first stone of the new Hospital at Westminster Bridge was laid by the Queen, and the completed building was opened by Her Majesty in 1871. In September the patients were first admitted into the new Hospital, and the Medical School was opened on October the 2nd.

The original Hospital latterly contained 500 beds. The present building contains in all 572 beds. It consists of six blocks appropriated to the reception of patients; with one for the administrative and other offices, and one for the Medical School. The Ward blocks, though connected by corridors, stand apart, so as to afford free exposure in all directions. The Wards, with the exception of four which are placed on the ground floor, occupy the first, second, and third floors. Generally, each Ward affords accommodation for 28 beds, which are placed against the piers between the windows, so as to secure thorough ventilation. In a small Ward annexed to each larger Ward, there are two beds for cases requiring special care or treatment.

Of the whole accommodation of the Hospital, about 180 beds are appropriated to ordinary Medical cases, and 230 to ordinary Surgical cases. There are also special Wards for the reception of diseases peculiar to women; for diseases of the eye; for venereal affections; and for children under six years of age. In one of the blocks, separated from the rest of the establishment, there are Wards for infectious diseases.

The space provided for each bed in the ordinary Wards is upwards of 1,800 cubic feet, and in the block appropriated to infectious diseases, about 2,500 cubic feet.

The Out-patients' Department is extensive and well arranged, and every facility is afforded for the treatment of different forms of Medical and Surgical casualties and diseases.

During the twelve months ending December 31st, 1877, the number of patients admitted into the Hospital amounted to 3419. In the same period, 20,166 Out-patients have been treated, and in the Maternity department 1733 women have been attended at their own homes. Casualties, to the number of 55,683 attendances, were treated during the same period.

The School buildings stand at the southern extremity of the Hospital, from which they are quite isolated. They contain ample accommodation for large classes of students.

The Museum is one of the most important in the metropolis. There is a large Reading Room and Library for the use of the pupils.

In addition to these are the various Lecture Rooms, the Dissecting Rooms, the Laboratories for Practical Physiology and for Practical Chemistry, and the Post-mortem Rooms.

The Committee of the "NIGHTINGALE FUND" have arrangements with the authorities of St. Thomas's for educating Women as Hospital Nurses. On the satisfactory completion of one year's training, they will be required to enter into service as Nurses in the Metropolitan or Provincial Hospitals or Infirmaries. A limited number of gentlewomen can be admitted under special agreements to this course of training with a view to qualify themselves for superior appointments.

The Regulations as to the admission of Candidates may be obtained by writing to Henry Bonham Carter, Esq., the Secretary of the Nightingale Fund, 91, Gloucester Terrace, Hyde Park, London, W.

Institutions requiring trained Superintendents or Nurses are requested to apply to the Secretary of the Nightingale Fund, or to Mrs. W. W. Wardroper, the Matron of the Hospital, giving as long previous notice as possible of their requirements.

Women wishing to be trained should, whenever it is possible, make personal application to Mrs. Wardroper, to be entered on the list of Candidates, for admission as vacancies occur.

MEDICAL OFFICERS & LECTURERS

OF

ST. THOMAS'S HOSPITAL

AND

MEDICAL SCHOOL.

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J. Risdon Bennett, M.D. Edin., F.R.S. 22, Cavendish Square, W.
T. B. Peacock, M.D. Edin. .. .. .. 20, Finsbury Circus, E.C.

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C. Murchison, M.D. Edin., LL.D., F.R.S. 79, Wimpole Street, W.
W. H. Stone, M.A., M.B. Oxon. .. 14, Dean's Yard, Westminster, S.W.
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W. S. Greenfield, M.D. Lond. .. .. 15, Palace Road, S.E.

ASSISTANT OBSTETRIC PHYSICIAN.

R. Cory, M.B. Cantab. .. .. .. 14, Palace Road, S.E.

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APOTHECARY.

S. Plowman, Esq. .. .. St. Thomas's Hospital, S.E.

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R. W. Reid, M.D. .. .. 10, Nottingham Place, W.

ANALYTICAL CHEMIST.

Albert J. Bernays, Ph.D. .. .. .. Acre House, Brixton Rise, S.W.

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T. Cranstoun Charles, M.D. .. .. 10, Mitre Court Chambers, Temple, E.C.
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Charles Stewart, Esq., F.L.S. .. .. 25, Albert Square, Clapham Road, S.W.
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SECRETARY.

J. W. Gillespie, M.D.
25, Porchester Terrace, W.

DEAN OF THE SCHOOL.

W. M. Ord, M.D.
7 Brook Street, W.

LECTURES AND DEMONSTRATIONS.

Medicine	Dr. Bristowe. Dr. Ord.
Clinical Medicine	Dr. Bristowe. Dr. Murchison. Dr. Stone. Dr. Ord.
Do. Obstetric	Dr. Gervis.
Clinical Medicine, Special Course ..	Dr. Murchison.
Surgery	Mr. Sydney Jones. Mr. Mac Cormac.
Clinical Surgery	Mr. S. Jones. Mr. Croft. Mr. Mac Cormac. Mr. Mason.
General Pathology	Dr. Payne.
Descriptive Anatomy	Mr. Mason. Mr. W. W. Wagstaffe.
General Anatomy and Physiology ..	Dr. John Harley.
Practical Physiology	Dr. T. C. Charles.
Ophthalmic Surgery	Mr. Nettleship.
Chemistry and Practical Chemistry ..	Dr. Bernays.
Midwifery, and the Diseases of Women and Children	Dr. Gervis.
Physics and Natural Philosophy ..	Dr. Stone.
Materia Medica, and Therapeutics ..	Dr. Stone.
Forensic Medicine	Dr. Payne and Dr. Cory.
Pathological Anatomy	Dr. Greenfield.
Botany	Mr. A. W. Bennett.
Comparative Anatomy	Mr. C. Stewart.
Mental Diseases	Dr. H. Rayner.
State Medicine	Dr. A. Carpenter.

TEACHERS OF PRACTICAL SUBJECTS & DEMONSTRATORS.

Practical Chemistry	Dr. Bernays.
Practical and Manipulative Surgery	Mr. Croft. Mr. Mac Kellar.
Demonstrations in Anatomy	Mr. Wagstaffe. Dr. Reid, Mr. Pitts, and Assistants.
Demonstrations in Microscopical Anatomy	Mr. Rainey.
Demonstrations of Morbid Anatomy ..	Dr. Greenfield and Dr. Reid.
Demonstrations in Physiology	Dr. T. C. Charles.
Demonstrations in Practical Physiology	Dr. Charles and Mr. Hutton.
Diseases of the Eye	Mr. Nettleship.
Diseases of the Skin	Dr. Payne.
Diseases of the Throat	Dr. Greenfield.
Diseases of the Ear	Mr. Clutton.
Diseases of the Teeth	Mr. J. W. Elliott. Mr. W. G. Ranger.

TIMES OF ATTENDANCE OF THE PHYSICIANS AND SURGEONS IN THE WARDS.

	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
Dr. BRISTOWE	—	2	—	—	2	—
Dr. MURCHISON	2	—	—	2	—	—
Dr. STONE	2	—	—	2	—	—
Dr. ORD	—	2	—	—	2	—
Dr. GERVIS	2	—	—	2	—	—
Mr. SYDNEY JONES	—	2	—	—	2	—
Mr. CROFT	2	—	—	2	—	—
Mr. MAC CORMAC	2	—	—	2	—	—
Mr. MASON	—	2	—	—	2	—
Mr. NETTLESHIP	2	—	—	2	—	—

TIMES OF ATTENDANCE OF THE ASSISTANT-PHYSICIANS AND ASSISTANT-SURGEONS ON THE OUT-PATIENTS.

	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
Dr. HARLEY	—	12.30	—	—	12.30	—
Dr. PAYNE	—	—	12.30	—	—	12.30
Dr. GREENFIELD	12.30	—	—	12.30	—	—
Dr. CORY	—	—	12.30	—	—	—
Mr. MASON	12.30	—	—	12.30	—	—
Mr. WAGSTAFFE	—	12.30	—	—	12.30	—
Mr. MAC KELLAR	—	—	12.30	—	—	12.30

TIMES OF ATTENDANCE ON THE OUT-PATIENT SPECIAL DEPARTMENTS. (See p. 21.)

	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
Dr. GERVIS (Diseases of Women)	—	—	—	—	12.30	—
Mr. NETTLESHIP (Diseases of Eye)	1.30	1.30	1.30	1.30	1.30	—
Dr. PAYNE (Diseases of Skin)	—	—	—	12.30	—	—
Dr. GREENFIELD (Dis. of Throat)	—	12.30	—	—	—	—
Mr. CLUTTON (Diseases of Ear)	—	12.30	—	—	—	—
Dr. CORY (Diseases of Children)	—	—	—	—	—	12.30
Mr. ELLIOTT Mr. RANGER } (Diseases of Teeth)	—	10	—	—	10	—
Dr. CORY (Vaccination)	—	—	11.30	—	—	—

DAYS AND HOURS OF ATTENDANCE ON LECTURES AND DEMONSTRATIONS.

WINTER SESSION.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
Descriptive and Surgical Anatomy ..	9	9	9	9	9	—
Anatomical Demonstrations*	10—4	10—4	10—4	10—4	10—4	10—2
Chemistry	—	10	—	10	10	—
Physics	—	—	—	—	—	12
General Pathology	—	4	—	—	—	—
Physiology	—	4	4	—	4	—
Physiological Demonstrations	12	—	12	—	12	—
Clinical Medicine, Special Course ..	—	9	—	—	—	—
Medicine	4	—	5	4	—	—
Surgery	5 or	5	—	5	5	—
Practical and Manipulative Surgery	—	—	—	—	—	9
Pathological Anatomy	—	—	—	—	4	11½ 1½

Demonstrations of Morbid Anatomy 2 p.m. daily.

SUMMER SESSION.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
Materia Medica	9	—	9	—	9	—
Forensic Medicine	—	9	—	9	—	9
Botany	—	10	10	—	—	10
Practical Chemistry	10—12	—	—	10—12	10—12	—
Comparative Anatomy	12	—	—	12	—	—
Practical Physiology	—	12.30	12.30	—	12.30	—
Mental Diseases	—	—	—	—	12	—
Midwifery	4	4	—	4	4	—
State Medicine	—	—	4	—	—	—
Ophthalmic Surgery	5	—	—	—	—	—
Practical and Manipulative Surgery	—	5	—	—	5	—

Demonstrations of Morbid Anatomy 2 p.m. daily.

The times of delivery of the Clinical Lectures are arranged, in accordance with other work, in the course of the Session.

* The Dissecting Room is open to the Students from 9 a.m. till 6 p.m.

SURGICAL OPERATIONS are performed on Wednesdays and Saturdays at 1.30 p.m., except in cases of emergency.

In-Patients are admitted daily at Half-past 11 o'clock.

Out-Patients with Diseases of the Skin are seen by Dr. PAYNE, on Thursdays at Half-past 12 o'clock.

Diseases of women and children occurring amongst *Out-Patients* are treated on Fridays by Dr. GERVIS, and on Wednesdays by Dr. CORY, at Half-past 12 o'clock.

Children under 7 years of age are also seen by Dr. CORY, on Saturdays at Half-past 12 o'clock.

Ophthalmic cases are seen as Out-patients by Mr. NETTLESHIP, at 1.30 daily, except Saturdays; and the Operations are performed on Fridays at 2 o'clock.

Out-Patients with Diseases of the Ear are seen by Mr. CLUTTON, on Tuesdays at Half-past 12 o'clock; and Diseases of the Throat occurring amongst the *Out-Patients* are treated on Tuesdays by Dr. GREENFIELD, at the same hour.

Instruction in *Dental* Surgery is given by Mr. ELLIOTT and Mr. RANGER on Tuesdays and Fridays, at 10 o'clock.

Practical Instruction in the administration of anæsthetics will be given by Mr. Osborn.

Post-Mortem Examinations by Dr. GREENFIELD, and Dr. REID, and Pathological Demonstrations, daily, at 2 o'clock p.m.

The Medical and Surgical *Casual Patients* are seen by the Resident Assistant-Physician, the Resident Assistant-Surgeon, the House-Surgeons, Assistant House-Surgeons and Dressers, at 12 o'clock daily.

In addition to the Clinical instruction given in the Wards and the Out-Patients' Rooms by the Medical and Surgical Officers, Lectures on Clinical Medicine and Surgery are delivered weekly during both the Winter and Summer Sessions by the Physicians and Surgeons to the Hospital, and Special Lectures on Clinical Medicine are delivered once a week by Dr. MURCHISON.

Practical instruction in Vaccination is given by Dr. CORY once a week.

St. Thomas's Hospital is now recognised as a Local Vaccination Station, and Dr. CORY is authorised to give certificates of instruction in Vaccination according to the requirements of the Local Government Board.

SUGGESTIONS TO STUDENTS.

All gentlemen who intend to obtain the Licence of the Royal College of Physicians of London, the Diploma of the Royal College of Surgeons of England, or the Licence of the Society of Apothecaries, must, in order to be able to register their attendance upon Hospital practice or lectures, possess the certificate in Arts granted by one of the bodies whose certificates are recognised by the General Medical Council. Gentlemen who intend graduating in the University of London should pass the Matriculation Examination, and, if possible, the Preliminary Scientific Examination also (see p. 26), before beginning their Medical Studies.

A list of the Licensing Bodies whose certificates are recognised by the Medical Council, may be obtained by a written application addressed to the Registrar, 315, Oxford Street, London, or from the Secretary at the Hospital.

Students when entering must produce their certificates of Preliminary Examination, in order that the commencement of Professional Education may be registered, as the four years of study required will date from such registration.

Students are advised to enter at the commencement of the Winter or Summer Sessions, unless time be an object ; in the latter case a student may enter at any time, and the four years required before qualifying will count from such entrance.

The period during which he must attend the Medical and Surgical Practice of a recognised Hospital, and attend the courses of Lectures which are required, varies according to the licences or diplomas for which he is a candidate; but all needful information can at once be obtained from the Secretary, Dr. GILLESPIE.

All the Licensing Bodies require each candidate to pass at least two Examinations. The Student may present himself for the first of these at the termination of his second year of study, and for the final one at the end of his fourth year.

No Student is obliged to remain at the Hospital more than three years, provided he has obtained the required certificates of attendance upon lectures made compulsory by the respective licensing bodies. He must, however, in the event of leaving the Hospital, be engaged during the fourth year in the acquisition of professional knowledge elsewhere, unless he have completed a recognised period of study before coming to the Hospital.

Students are recommended not to avail themselves of the permission, as it is during this latter period of their curriculum that, having fewer lectures to attend, they can better devote themselves to the study of Disease in the Wards of the Hospital.

All Students are likewise strongly advised to use every effort to obtain the junior appointments open to them, and especially those of Clinical Clerk and Dresser, House Physician and House Surgeon. These appointments are now accessible to Students of the Hospital without payment, and offer opportunities for obtaining practical professional knowledge, the value of which it is impossible to estimate too highly.

* * *

Students are requested to observe that, by the Regulations of some of the Examining Bodies, and of the Hospital, the different courses of Lectures should be attended in the following order.

FIRST YEAR.

Winter Session.—Anatomy, Dissections, Physiology, Chemistry.
Summer Session.—Materia Medica, Botany, Practical Physiology, Practical Chemistry, Clinical Surgery.

SECOND YEAR.

Winter Session.—Anatomy, Physiology, Medicine, Surgery, Dissections, Clinical Medicine and Surgery.
Summer Session.—Midwifery, Forensic Medicine, Comparative Anatomy, Clinical Medicine and Surgery.

THIRD YEAR.

Winter Session.—Medicine, Surgery, Pathology, Pathological Anatomy, Clinical Medicine and Surgery.

Students are advised, during their first Winter Session, to attend the Lectures on Physics and Natural Philosophy; in their second or third Winter and Summer Sessions, to attend the course of Practical and Manipulative Surgery; and in their second or third Summer Session, to attend the course of Ophthalmic Surgery, and the Lectures on Mental Diseases and on Hygiene.

They are also strongly recommended to devote, during the whole period of their attendance at the Hospital, as much time as they can spare from other engagements, to the study of Practical Medicine and Surgery in the wards and in the out-patients' rooms.

* * *

FEES FOR ATTENDANCE ON THE LECTURES

AND ON THE

PRACTICE OF THE HOSPITAL.

It having been agreed by the managing bodies of the chief Medical Schools of London, that a general increase of fees should be adopted to meet increased expenses, and the fuller course of instruction now provided for students, the following will be the scale of payments for the year 1878-9.

PERPETUAL TICKETS.

Admitting to Hospital Practice and Lectures.

The Fee to Hospital Practice and Lectures may be paid in several ways:

1st. One Hundred and Twenty-five Pounds paid on entrance;

2nd. One Hundred and Thirty pounds in two payments, £70 on entrance, and £60 at the beginning of the next year;

3rd. Payment by three instalments, viz., of £60 at the beginning of the first year, £50 at the beginning of the second year, and £30 at the beginning of the third year, entitles a Student after payment of the third instalment to an unlimited attendance.

Gentlemen entering at St. Thomas's in the second year of their Studentship pay £65 for that year; £25 for the third year; or upon paying £85 on entrance, they will become Perpetual Students. Students entering in their third year pay £40; for the next year £20, or one payment of £55 on entrance will entitle them to be Perpetual Students.

The Fee for attendance on the *general* subjects required of Students in Dental Surgery, is for the two years, £55, or by instalments, £50 for the first year, and £10 for the second year. If certificates for *Dental* practice are also required, the special fee for that subject (page 25) has to be paid.

Regularly qualified Medical Practitioners are admitted to the Hospital practice, and to the Lectures and Library, on payment of a fee of £12. 10s. for unlimited attendance; but are not entitled to receive certificates for such attendance.

All privileges in respect of Hospital attendance are granted subject to the approval of the Governors.

EXTRA CHARGES.

Students attending the Classes of Practical Chemistry and Practical Physiology are required to pay a fee of One Guinea and a half for each Class, as a contribution towards the cost of instruments supplied, and of materials used by them.

Students attending the Class of Practical Physiology should at once provide themselves with Microscopes.

Each Student attending the Class of Pathological Anatomy, will be required to pay a fee of Half-a-Guinea for reagents and necessary apparatus.

Students Dissecting pay for the parts they dissect at fixed rates, which are notified in the Library.

Each Student attending the course of Practical and Manipulative Surgery, will be required to pay for the parts of the bodies upon which he may operate, at the same rate as for subjects for dissection.

The Clinical Clerks must provide themselves with a Stethoscope and Registering Clinical Thermometer. The Dressers are required to have a Registering Clinical Thermometer, a Pocket Case of Instruments, and a Case of Silver Catheters.

Each Student wishing to make use of the Library will be required to pay a fee of One Guinea for the whole period of his Studies at the Hospital.

The different Courses of Lectures, or the Hospital Practice, may also be attended separately on the following terms:

For the Medical and Surgical Practice, including the Special Departments.

Three months	£10	Twelve months	£30
Six ditto	£18	Perpetual	£45
Nine ditto	£25		

Dental Practice, 1 year 2 Gs., Perpetual 3 Gs.

For Lectures and Demonstrations.	1 *Course.*	*Perpetual.*
Medicine, Surgery, Physiology, Anatomy, Chemistry each	6 Gs.	..10 Gs.
Midwifery	4 "	.. 6 "
Materia Medica, Botany, Physics, Forensic Medicine, General Pathology, and Comparative Anaty. each	3 "	.. 5 "
Mental Diseases, Ophthalmic Surgery, State Medicine each	2 "	.. 3 "
* Practical Chemistry, Practical Surgery, Practical Physiology, Pathological Anatomy .. .. .. each	4 "	—

Dissections, three months 4 Gs., six months 6 Gs., Perpetual 10 Gs.

Instruction in Pharmacy and Pharmaceutical Manipulation, to meet the requirements of the Royal Colleges of Physicians and Surgeons, and of the Society of Apothecaries, is given in the Dispensary of the Hospital by the Apothecary, Mr. S. Plowman. The fee for this course of instruction is 5 Guineas for three months. Application to be made to the Secretary, Dr. Gillespie.

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* These amounts do not include the extra charges in the Practical Courses for Materials, Instruments, &c.

UNIVERSITY OF LONDON

PRELIMINARY

Scientific and First M.B. Classes.

PRELIMINARY SCIENTIFIC EXAMINATION.

Special Classes in the subjects required for the Preliminary Scientific Examination at the University of London, will be held from January to July, and will include all the subjects required as follows:

Botany	A. W. Bennett, M.A., B.Sc. Lond., &c.	Wednesdays, 11 to 12.
Chemistry (Inorganic)	A. J. Bernays, Ph.D., &c.	Tuesdays, at 2, and Thursdays, 9 to 10.
Mechanical and Natural Philosophy	W. H. Stone, M.B. Oxon.	Fridays, 2 to 3.
Zoology	C. Stewart, M.R.C.S., &c. ..	Saturdays, 11 to 12.

The Fee charged to Students of the Hospital for instruction in the above is	*Six Guineas.*
To others, exclusive of Practical Chemistry	*Ten Guineas.*
Fee for any single subject	*Three Guineas.*

Instruction in Practical Chemistry is necessary for this Examination. This, so far as Students of the Hospital are concerned, is held to be given in the course of Practical Chemistry attended by all Students in their first Summer, the requirements of the University being specially regarded in this Course.

Students requiring a Second Course of Practical Chemistry, are charged	*A Guinea and a-half for Chemicals.*
Gentlemen, not Students of the Hospital, are charged	*Two Guineas.*

FIRST M.B. EXAMINATION.

Classes in the subjects required for this Examination are held by the different Lecturers on those Subjects.

Anatomy	R. W. Reid, M.D.	Mondays, 1 to 2.
Chemistry	A. J. Bernays, Ph.D., &c. ..	Wednesdays, 10 to 11.
Materia Medica ..	W. H. Stone, M.B. Oxon .. S. Plowman, Esq.	Wednesdays, 2 to 3. Tuesdays, 2.30.
Physiology	Dr. Charles	Mondays, 11.30.

Fee to Students of the Hospital inclusive of Organic Analysis*	*Seven Guineas.*
Fee for any Single Subject	*Three Guineas.*

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* Instruction and Practice in Organic Analysis is essential for this Examination.

SCHOLARSHIPS, PRIZES, APPOINTMENTS, AND HONORARY DISTINCTIONS.

ENTRANCE SCHOLARSHIPS IN NATURAL SCIENCE.

As an inducement to the study of Natural Science before the commencement of the strictly Medical Course, two Scholarships, of the value of £60 and £40 respectively, are awarded annually, after an examination in Physics, Chemistry, Botany, and Zoology. The Examinations for these Scholarships will be held in the beginning of October each year, the subjects being the same as those for honours in the Preliminary Scientific Examination of the London University, viz.: Botany, Zoology, Chemistry (including Practical Chemistry), and Natural Philosophy. Those Students shall be entitled to compete who are duly entered as First Year Students of the Hospital, during the Summer or Winter Session.

THE WILLIAM TITE SCHOLARSHIP.

This Scholarship, founded by the late Sir W. TITE, C.B., M.P., F.R.S., and endowed with £1,000 Consols, producing £30 per Annum, is awarded each year to the Student placed highest in the 1st Class List in the examinations at the end of the first Winter Session. Preference, in case of equality between Students, is to be given to the son of a medical man, and more particularly of one who has been educated at St. Thomas's Hospital or is in Practice in Bath.

THE MUSGROVE SCHOLARSHIP.

This Scholarship, founded by Sir JOHN MUSGROVE, Bart., the President of the Hospital, and endowed with £1,400 Consols, producing 40 Guineas per Annum, is awarded biennially to the Student who shall take the highest place in the 1st Class List in the examinations at the end of the Second Winter Session. It is tenable for two years, provided the holder obtains a place in the 1st Class in the subsequent Examinations.

A COLLEGE SCHOLARSHIP.

A Scholarship, of the value of 40 Guineas, also tenable for two years, will be given every second year, alternately with the Musgrove Scholarship, and on similar conditions, to the Student placed highest in the 1st Class List, in the examinations at the end of the second Winter Session.

Gentlemen obtaining these Scholarships are not precluded from receiving any of the Prizes awarded at the subsequent periodical examinations.

PRIZES.

The following Scholarships, Prizes, and Medals, will be awarded during the year 1878–1879:—

TWO ENTRANCE SCHOLARSHIPS IN NATURAL SCIENCE of the value of £60 and £40 respectively

For First Year's Students.

Winter.

1st.	The William Tite Scholarship	£30.
2nd.	College Prize	£20.
3rd.	Ditto	£10.

Summer.

1st.	College Prize	£15.
2nd.	Ditto	£10.
3rd.	Ditto	£5.

For Second Year's Students.

Winter.

1st.	The College Scholarship	£42.
2nd.	College Prize	£20.
3rd.	Ditto	£10.

Summer.

1st.	College Prize	£15.
2nd.	Ditto	£10.
3rd.	Ditto	£5.

For Third Year's Students.

Winter.

2nd tenure of Musgrove Scholarship		£42.
1st.	College Prize	£20.
2nd.	Ditto	£15.
3rd.	Ditto	£10.

Students of each year are classed according to their respective merits in the examinations, and those in the *first* class in each year receive Certificates of Honour, and a preference in the selection for Hospital Appointments.

In addition there are awarded—

The CHESELDEN MEDAL.
The MEAD MEDAL.
The SOLLY MEDAL and PRIZE.
The GRAINGER TESTIMONIAL PRIZE.
The TREASURER'S GOLD MEDAL.

The Cheselden Medal, founded by the late George Vaughan, Esq., is annually awarded to the Fourth Year's Student who most distinguishes himself in a practical Examination in Surgery and Surgical Anatomy.

The Mead Medal, founded by Mr. and Mrs. Newman Smith, is awarded annually, to a Fourth Year's Student, in respect of a special Practical Examination in Medicine.

The SOLLY MEDAL, together with a Prize in Money, will be awarded biennially. Those Students are eligible to compete who shall be of from three to six years' standing. The award is made for the best series of Reports of Surgical cases coming under the Students personal observation in the Wards, not, however, to exceed ten in number. Preference is given, merit in other respects being equal, to Reports illustrated by the author's drawings, and short Clinical Remarks must accompany each Report. The next award will be made at the end of 1879–80.

The GRAINGER TESTIMONIAL PRIZE, of the value of Twenty Pounds, is awarded biennially to Students who shall be of from three to six years' standing, for the best Physiological Essay, to be illustrated by preparations and dissections. Competitors for this Prize must be Medical Students of St. Thomas's Hospital, and on the day of sending in their Essays, Dissections, and Preparations, shall have completed the Second, and not more than the sixth year of their medical studies.

The TREASURER'S GOLD MEDAL for General Proficiency and Good Conduct, is awarded to the Student who has passed through the whole of his four years' pupilage in the most meritorious manner.

Two HOUSE PHYSICIANS and Two ASSISTANT HOUSE PHYSICIANS, Two HOUSE SURGEONS and Two ASSISTANT HOUSE SURGEONS, and a RESIDENT ACCOUCHEUR, are selected from Gentlemen who have obtained their professional diplomas; they hold office for three or six months. The Assistant House Physicians and House Surgeons are non-resident, but the other Officers, together with the Dressers and Obstetric Clerks, are provided with Rooms and Commons during their period of attendance in the Hospital, free of expense.

An Ophthalmic Clinical Assistant is appointed for six months with a Salary at the rate of £50 per annum; the appointment is renewable.

Four Surgical Ward Clerks, each holding office for six months, are appointed twice a year.

CLINICAL CLERKS, and DRESSERS, to In-Patients are selected to the number of at least 48 respectively each year. They are chosen from amongst the most eligible pupils. CLINICAL CLERKS, and DRESSERS, for the Out-Patients are also appointed to the number of at least 40 to 50 each year.

All Students have the opportunity afforded them of being engaged in the performance of practical duties in connection with the Medical, Surgical, Obstetrical, Ophthalmic, and Pathological Departments of the Hospital.

Two HOSPITAL REGISTRARS, at an annual Salary of £100 each, are appointed in each year. Preference will be given to Gentlemen who have been distinguished for merit, and have completed their studies in the School. The payment of the Registrars is subject to the presentation of a Report upon the Practice of the Hospital, and to such Report being regarded as satisfactory by the Medical Officers to whom it shall have been referred.

Two or more Gentlemen are selected from Students who have completed their Second Winter Session, to act as Assistants in the Physiological Laboratory.

Two or more Gentlemen are selected from Students who have completed their Second Winter Session, to act as Assistants in the Dissecting Room. They receive Certificates of Honour according to merit.

Prosectors are appointed in the early part of the Winter Session, and Prizes are awarded to the best Dissectors at the termination of the Session.

Gentlemen are likewise appointed to act as Assistants to the Demonstrators of Pathological Anatomy in the Post-mortem Room.

Obstetric Clerks, who reside and have Commons in the Hospital, are appointed in rotation. Each holds office for a fortnight, and Certificates of Honour are awarded to those Gentlemen who have satisfactorily attended Fifty Maternity cases.

Students have access, with the permission of the Officers under whose superintendence they are placed, to the Museums of Human and Comparative Anatomy and Pathology—of Materia Medica—of Botany— and of Chemistry and Mineralogy—and to the Laboratories of Practical Physiology and Practical Chemistry; also to the Library, which contains a large collection of works of reference and modern text-books, on payment of a small Fee for perpetual admission.

MUSEUM.

Among the earliest contributors to the Museum were Mr. Cline, Sir A. Cooper, Mr. Travers, and Mr. Tyrrell, and since then it has been year by year increased by large and valuable additions, so that it is now in most respects extremely complete. The Collection of Human Anatomy contains a series of dissected preparations, illustrating the Organs of Locomotion and the Senses, the Nervous, Vascular, Digestive and Respiratory Systems, the Urinary Apparatus, Organs of Reproduction, and the Tissues.

The Pathological division is most valuable and complete, containing upwards of 3,000 specimens, arranged in sections, illustrating the Diseases and Injuries of Bone and of the Joints, a section recently much enriched by numerous specimens of Gunshot injury, presented by Mr. Mac Cormac, obtained from cases under his treatment during the Franco-German war; also those of the Head and Nervous System, the Abdomen, including Diseases and Injuries of the Intestines, Liver, and Kidneys, also Hernia. The disorders of the Respiratory and Vascular Systems are very fully represented. The diseases of the Urinary and Reproductive Organs form a rich and extensive section. There is a large and valuable Collection of Calculi, and a section representing various Malformations.

The Museum of Comparative Anatomy contains about 1,000 preparations, many of them of great value and interest, a large number of these being the gift of Mr. Stewart, the Curator of the Museum.

St. Thomas's Hospital.

MEDICAL AND PHYSICAL SOCIETY.

Hon. President, 1878–9.

H. H. Clutton, Esq.

Vice-Presidents.

The Physicians.
The Assist.-Physicians.
C. Stewart, Esq.
Dr. Bernays.
Dr. Sharkey.
Dr. Gillespie.
The Surgeons.
The Assist.-Surgeons.
Dr. A. Carpenter.
Dr. Reid.
B. Pitts, Esq.
Dr. Rayner.

Hon. Secretaries.

Mr. T. D. Savill, Mr. W. A. Duncan.

Committees.

4th Year, Mr. C. A. Ballance, Mr. T. D. Acland.
3rd Year, Mr. J. N. Stephens, Mr. A. E. Odling.
2nd Year, Mr. W. Wansbrough Jones, Mr. W. Fell.

This Society was originated in the early part of the present century by students of the Hospital for the reading and discussion of papers on Medicine, Surgery, and the allied sciences, the narration of cases, and the exhibition of specimens of Physiological and Pathological interest. The Meetings are held in the Library on alternate Thursdays at 7·30 p.m., and terminate not later than 9·30.

Three prizes are annually awarded out of the funds of the Society to the authors of the best papers written by the third, second, and first years' students respectively, and read before the Society. The annual soiree is held in December.

All students of St. Thomas's are eligible for membership, the annual subscription being 5*s*., or a composition life fee of 12*s*. 6*d*.

Further information can be obtained of the Hon. Secretaries.

ST. THOMAS'S HOSPITAL REPORTS FOR 1878.

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3. REMARKS ON PLEURAL TENSION. By Dr. Stone.
4. NOTES ON THE EXAMINATION OF THE BODIES OF FIFTY CHILDREN BORN DEAD OR SHORTLY DYING. By Dr. Cory.
5. ON THE TREATMENT OF ACUTE RHEUMATISM BY SALICYLATE OF SODA. By Dr. Sharkey.
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